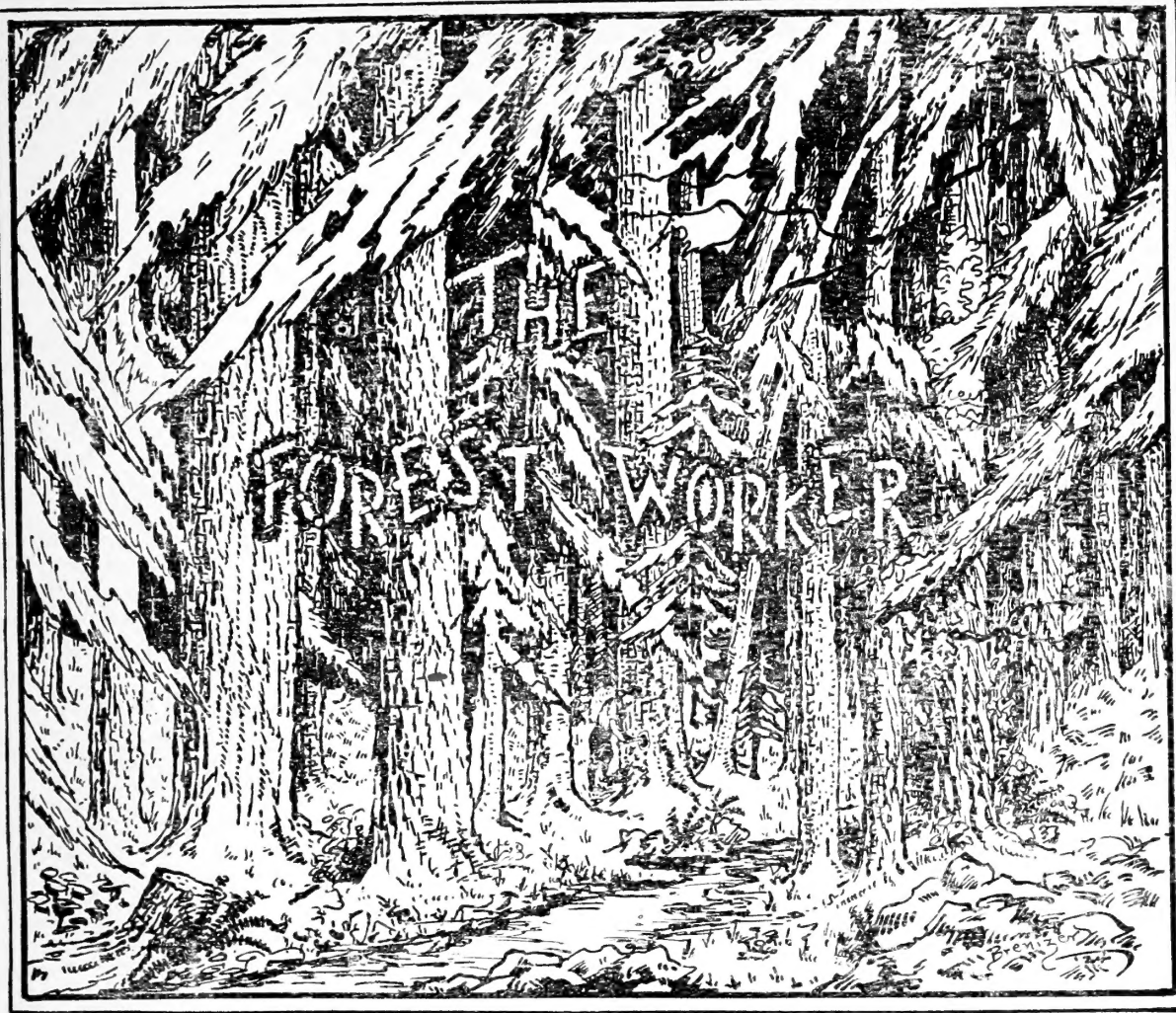


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EXPERIMENT STATIONS



NOVEMBER 1924.



UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

WASHINGTON D.C.

THE FOREST WORKER

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ANNOUNCEMENTS

An Important Conference on Wood Utilization

A national conference on the utilization of forest products to be held November 19 and 20 at Washington, D. C., has been called by Secretary Wallace. This meeting will mark the most comprehensive attempt ever made in the United States to have the economical use of existing timber supplies take its essential place in the national forestry program along with the prevention of forest fires and the growing of timber crops.

By better ways of manufacture and use the drain on the country's forests can be reduced at least one-fourth, Secretary Wallace states in his letter to representatives of wood-using industries, consumers, the building crafts, and the general public who have been asked to name 2,000 men and women to whom invitations to attend the conference should be sent.

It is planned to have the two-day meeting attended by representatives of both the wood-manufacturing and wood-consuming industries of the country. Newspapers, periodicals, railroads, builders, architects, foresters, forest schools, and the general public will be represented.

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Conference of Forest Schools of the United States
with the
Forest Service, Department of Agriculture
to be held at
Washington, D. C.,
December 29, 1924

Place of Meeting, ATLANTIC BUILDING, 930 F Street, N. W.
Time - 10 a. m.

Purpose - To consider the problem of correlating the needs of the Forest Service (the biggest employer of Forest School graduates) with the course of instruction and policy of the Forest Schools.

There will probably be an opportunity to discuss other problems directly concerned with forestry education in the United States.

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Notice of Annual Meeting of Association of State Foresters

The Association of State Foresters will hold its annual meeting this year in Louisiana on December 1-4. The first day will be devoted to a program of addresses at New Orleans and the remaining days will be spent in the field at Bogalusa and Urania. Colonel Greeley has accepted an invitation to attend and present a statement of policy concerning the administration of the several cooperative provisions of the Clarke-McNary law. This will be the first statement on the part of the Federal Government concerning the methods of administration of this cooperation, and considerable importance attaches to it.

The officials of this association are the following State Foresters: V. H. Sonderegger of Louisiana, President; R. P. McLaughlin of Montana, Vice President; and Chapin Jones of Virginia, Secretary-Treasurer. These, with R. Y. Stuart of Pennsylvania and J. S. Holmes of North Carolina comprise the Executive Committee.

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Meeting of Western Forestry and Conservation Association

The Western Forestry and Conservation Association will hold its annual conference in Vancouver, British Columbia on December 2 and 3. The topics discussed will be those made urgent by recent Federal legislation, by the bad fire year, and other developments in fire, forest and tax matters affecting the western States and British Columbia.

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Annual Meeting of the Society of American Foresters

The Society of American Foresters will hold its annual meeting in Washington, D. C., on December 30 and 31. This permits a fortunate coincidence with the 79th meeting of the American Association for the Advancement of Science which holds its convocation week here from December 29, 1924, to January 3, 1925.

Members of the society who desire to submit discussions for use in connection with the meeting should communicate with Major D. T. Mason, Northwestern Bank Building, Portland, Oregon. This being the 25th year of the society's existence, the program is being planned to emphasize the accomplishments of the past and the vision of the future.

Walter Mulford, President, has called a special meeting of the Executive Council for December 28 and 29. All members of the Council are urged either to be present at the Atlantic Building, 930 F Street, N. W., at 9 a. m. December 28, or to lodge a proxy with some member who is certain to be present.

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Walter Johnson Saves the Day

The editor raving and tearing his hair
Cursing softly, in bleak despair.....
"Why in hell don't they send me some news?
Do they think I can publish whatever I choose?
A 'house organ for Service, States, and Schools'...
'Informal discussion' of what?" he drools.
"I can't print what isn't sent in
It's up to the States and Schools to kick in
With some good juicy news"
..... "Hello, wotchersay?
World's Series? Oh boy! What time do they play?"

(It is evident that we the editor will in future have to censor such audible acerbity of our language, at least in the presence of our bob-haired coworker, who wrote the above.)

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations

$$\frac{dx}{dt} = f(x, y, z), \quad \frac{dy}{dt} = g(x, y, z), \quad \frac{dz}{dt} = h(x, y, z),$$

where f, g, h are continuous functions of x, y, z and

$$f(x, y, z) = 0, \quad g(x, y, z) = 0, \quad h(x, y, z) = 0$$

$$f(x, y, z) = 0, \quad g(x, y, z) = 0, \quad h(x, y, z) = 0$$

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$$f(x, y, z) = 0, \quad g(x, y, z) = 0, \quad h(x, y, z) = 0$$

where x, y, z are the coordinates of the point in the phase space. The second part of the paper is devoted to a detailed analysis of the case when the functions f, g, h are linear functions of x, y, z .

$$f(x, y, z) = 0, \quad g(x, y, z) = 0, \quad h(x, y, z) = 0$$

STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

Auxiliary Forest Reserve Laws not Valueless

John W. Keller, Penn. Dep't. of Forests and Waters

The Pennsylvania Auxiliary Forest Reserve Laws have not been accepted generally by the people of the State. In eleven years twenty-five applicants have classed approximately 20,000 acres. It is believed that the reason is not to be found in the law itself, nor a lack of knowledge of it throughout the State, but rather in the fact that timberlands in Pennsylvania are not unreasonably taxed. While the classification is not in common use, it is advantageous to have it on the statute books. The following is an example:

An application to have 6,654 acres of timberland classified as an Auxiliary Forest Reserve was filed in 1922. The reason for filing the application was that the assessed value of the timberlands had been increased from \$30,268 to \$58,260, and it was believed that a proportionate increase had not been made in the assessed value of other woodlands in the vicinity. The County Commissioners disapproved the classification. Nevertheless, the application was granted and the classification was made effective November 13, 1922. Checks for the taxes due under the Auxiliary Forest Reserve Laws for the years 1922 and 1923 were refused and in July, 1923, the court ordered a temporary injunction, restraining the County Commissioners from changing the records and the tax duplicates from a general property tax to an Auxiliary Forest tax status. This was considered an evasion of the law, and the Attorney General of Pennsylvania immediately petitioned the court to intervene on behalf of the Department of Forests and Waters, the agency vested with authority to enforce the law.

The County Commissioners apparently did not wish to go into the courts and agreed that no increase in the assessment would be made during the present triennial period if the landowner would pay the 1922 and 1923 taxes under the 1921 assessment and have the lands removed from the class of Auxiliary Forest Reserves. This was done and everybody is satisfied.

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Georgia Enacts Forestry Measure

The most important forest conservation measure ever passed in Georgia became a law recently when the Georgia State Senate passed the "Forestry Contract Act."

This act, which was introduced by Senator Mundy at the request of the State board of forestry, provides for the fixing of the assessed value of lands set to timber or allowed to grow up in second growth and protected from fires for a period of from fifteen to forty years.

It provides for the placing of lands on which reforestation is desired under contract with the State board of forestry, subject to a yield tax to be levied at the time of cutting.--American Lumberman.

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An Amendment to Promote Reforestation

Inasmuch as many of the States will find it necessary to revise existing laws or enact new statutes, and perhaps in some cases amend their constitutions in order to avail themselves of certain provisions of the Clarke-McNary forestry law, the experience of each State in the practice of forestry and in the enactment of forestry legislation in the United States is still in the experimental stage, and yet the need for both is urgent. It is important, therefore, that each step taken be in the direction of progress.

It is one of the virtues of the new Federal law that room is left in its cooperative provisions for the practice of forestry adapted to the needs and the aptitudes of the different regions; so that it is neither necessary nor desirable that State laws should be all cut after one pattern. But there are certain general conditions that obtain everywhere, and so far as they can be met by uniform legislation it is to be assumed that lawmakers will profit by the experience of their fellows in neighboring States.

One of the most difficult problems to meet in forestry legislation is that of taxation. This fact is recognized in a provision of the Federal law which authorizes studies of forestry laws and cooperation with the States in framing such statutes. It is not too much to say, perhaps, that most of the general tax laws of the country need revamping; certainly, it is true that reforestation cannot be brought about without tax reform. An interesting attempt to effect such a reform in the taxing of forest lands is being made in California through an amendment to the State constitution. The California experiment is especially interesting because it involves a slight amendment of a clause that already places fruit trees in the same classification in which it is necessary to place forest trees in order to make reforestation practicable. The amendment reads as follows, the underlined clauses showing the proposed changes:

"Section 12 3/4 - Fruit and nut-bearing trees under the age of 4 years from the time of planting in orchard form, and grapevines under the age of 3 years from the time of planting in vineyard form, and young forest growth managed in accordance with statutes enacted by the State legislature, shall be exempt from taxation, and nothing in this article shall be construed as subjecting such fruit and nut-bearing trees, grapevines and immature forest growth to taxation."

This whole clause might properly be appropriated by other States in which both reforestation and fruit growing are or may be carried on extensively. The analogy between the growing of fruit trees and of forest trees is so close as to leave no room for objection to placing them in one classification for taxing purposes.
--American Lumberman.

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To Vote on Reforestation in Wisconsin

According to C. L. Harrington, Superintendent of Forests and Parks, State Conservation Commission, Wisconsin will vote in November on a proposed amendment to the State Constitution which will provide:

That the State may appropriate moneys for the purpose of acquiring, preserving and developing the forests of the State, but there shall not be appropriated under the authority of this section in any one year an amount to exceed two-tenths of one mill of the taxable property of the State, as determined by the last preceding assessment.

This proposed amendment, if adopted, will recognize and legalize the right of the State to participate directly in the acquiring, developing, and preserving of the forest resources of the State. It will provide the legal basis for a State forest policy. The outlines of this policy, the appropriations made therefor, the rapidity of its progress and all other details will, of course, rest with the legislature. It will still remain for the legislature to put its stamp of approval on State forestry measures even with the proposed amendment enacted. The amendment is an enabling act. Without it no recognized State forest policy can be developed. State forests or the direct interest of the State in forestry are now outlawed by the constitutional prohibition relating to internal improvement.

Splendid Philanthropy

Governor Redfield Proctor has accepted for the State of Vermont a tract of 160 acres of land in the town of Charlotte, known as Mount Philo. This munificent gift was deeded to the State by Mrs. Frances W. Humphreys. It rises to an elevation of about 1,000 feet where, from the summit of Mt. Philo, one gets a view of some of the best scenery to be found anywhere in Vermont.

According to the deed of gift, the tract is to be held as a public reservation for the pleasure and benefit of the people. Mrs. Humphreys has always invited the public to use this area as a picnic ground. She has maintained on it suitable facilities for the use of campers and picnic parties. Numerous trails, stairways and an observation tower have been built.

The area will be under the administration of the State forest service, along with the thirteen other State reservations, which comprise an area of 30,000 acres. There are many such areas as this which might to advantage be the property of the State, either through the generosity of individuals or by purchase by the State.

The State forest service will have a guard on the tract and will use the tower as a fire lookout station. There are several acres of open land which will be reforested the coming spring.--
P. H. Merrill, Assistant Forester.

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The Hopeful Dawn of Forestry for South Carolina

Creation of a State Department of Forestry for South Carolina, the operating expenses of which are to be met by special taxes upon the lumber and allied interests of the State, will be proposed in a bill to be presented to the general assembly of 1925 by a committee named at the last forestry conference of the Conservation Society of South Carolina. Members of the committee appointed are: James Henry Rice, Jr., of Wiggins, Chairman; F. G. Davies of Charleston; V. G. Watters of Savannah; H. L. Tilghman of Sellers, and R. L. Montague of Charleston.

Mr. Rice outlined the plan for a forestry department as follows: A board of five men, to be nominated by the society and appointed by the governor - one lumberman, one farmer, one merchant or manufacturer, one transportation man and one representative of educational interests - will be proposed as the administrative body of the forestry department. This board will be empowered to select a forestry expert, who as State Forester is to name State forestry wardens, subject to confirmation by the board.

The following resolution was unanimously approved:

"Resolved, That a committee be appointed to confer with the South Carolina State Tax Commission to invoke its approval and cooperation to assure the passage of a general severance tax bill applicable to all forest products, this to be in lieu of the taxes now paid on timber leases; of a severance tax bill on all forest products, eliminating therefrom those who are now paying the timber lease tax; in either event from this tax a sufficient sum is to be appropriated to support a South Carolina forestry department.

"And that this committee be empowered to draw up a bill embodying the plan of taxation agreed upon and providing for the creation of a South Carolina forestry department, to be presented to the general assembly of South Carolina at its next session."--
The State, Columbia, S. C.

Fall Planting Successful in Massachusetts

The Massachusetts Department of Conservation has experimented with fall planting of coniferous forest stock for the past three years with such excellent results that it has now become an established policy of the Department. The spring season is so short that it is not possible to accomplish all the work required and further, on account of road conditions in the spring many sections are practically inaccessible. The Division of Forestry expects to set 300,000 trees in State forests and has received a number of orders from private planters for fall planting. Purchases of land for State forests now total 80,000 acres.--H.O.Cook, State Forester.

: The New York Conservation Commission is sending out with all
: their letters and bulletins a green card reading:

MAKE YOUR IDLE LAND PAY

A vast acreage of land in New York State is yielding no return to its owners.

Yet they have to pay taxes on it.

To them it is worth just what they pay in taxes less than
nothing.

Planted to trees and managed on intelligent forestry principles, this land will yield about \$5 an acre a year.

Trees can be obtained from the Conservation Commission at from \$1 to \$5 per thousand with instructions for planting.

A thousand trees will plant an acre.

If this interests you, write for Bulletin #2, Reforesting.

The Allen Parish Cooperative Forest

The Louisiana Department of Conservation, through its Division of Forestry, has entered into a contract with the Krause and Managan Lumber Company, whereby 22,600 acres of cut-over land have been turned over to the forestry division of the Department of Conservation for reforestation. The contract covers a period of forty years, the limit provided under the conservation laws. Louisiana is the first southern State actively to engage in reforestation upon a practical scale.

Rudolph Krause will have personal supervision of converting this cut-over land into a merchantable forest, the first step in the program being the prevention of forest fires. Two or three men will be placed on permanent duty to watch for fires and to protect the tract, and during the fall seedlings will be planted on areas where no growth has been reproduced. Expenses for maintaining range riders will be met equally by the lumber company and the forestry division.

The Krause-Managan Lumber Company was a manufacturer of yellow pine lumber in Allen Parish for many years, but for the last several years its plant has not been in operation due to the exhaustion of its lumber supply. The company owns large tracts of cut-over lands in different sections of the State and expects in the future to place additional lands under contract if this first venture proves successful.

The reforestation project in Allen Parish will be known as the "Allen Parish Cooperative Forest."--V. H. Sonderegger, La. State Forester.

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A Mixed Growth of Enthusiasm for North Carolina and Praise for Pennsylvania

H. M. Curran, N. C. Extension Forester

Pennsylvania has the best organized forest department of any of the States. This branch of the Government, built up by Governor Pinchot, is a model for North Carolina, whose resources are greater than those of Pennsylvania.

The total area of North Carolina is 31 million acres; Pennsylvania has 28 million acres. Forest area of North Carolina is 20 million acres; of Pennsylvania 13 million acres. North Carolina forests produce $1\frac{1}{2}$ billion feet of lumber, Pennsylvania forests $\frac{1}{2}$ billion feet. The lesson for North Carolina is contained in the figures given in a recent report.

An annual appropriation for forestry work by Pennsylvania of \$500,000 saves the State two million dollars annually in losses from fire while the planting of four million trees on waste lands assures the future of the State's forest industry.

North Carolina's present prosperity is due to her forest wealth and lumber industry as well as to her fields and cotton factories. During the period of 50 years following the Civil War, North Carolina has produced 42 billion feet of lumber worth \$15 per thousand, a total of 630 million dollars, practically all of which has gone as a labor payment for men and teams and to the farmers and laborers of rural North Carolina. We are still producing 42 million dollars worth of lumber annually and it is possible to continue this production indefinitely if proper protection is given to our forest areas.

An organization built up in North Carolina similar to the efficient department of forestry in Pennsylvania will assure the future of our forests and will enable us to cut an increased amount and better qualities of lumber in the years to come. Half a million spent annually by the State for fire prevention and the replanting of waste areas will give us a permanent industry which will add 100 million dollars worth of wealth to the State's income. This would be a splendid harvest gathered by farmers and laborers in every county of the State.

We have the habit of doing things well. Good roads are ours, good schools, public health is protected, and our fields are receiving intelligent care. The great task of turning our forests into income-producing areas, rivalling our ploughed fields, is again a live issue, and plans are on foot to secure the funds necessary to restore our forests, to assure for all time the continuing of the industries dependent on the forest and essential to our continued prosperity.

The People's Forest in Connecticut

G. H. Collingwood, Extension Forester, U. S. D. A.

The Connecticut Forestry Association and the Connecticut State Department of Forestry conceived the unique idea of a People's Forest. This first forest gift of the people of the State was dedicated at Pleasant Valley on October 4.

It is intended that this forest shall contain an area of about 2,700 acres. On the occasion of the dedication 400 acres were actually transferred and sufficient money had been raised to increase this to more than 1,000 acres.

Three thousand people came from all over the State to witness a pageant portraying the influence of the forest upon the life of the people. Opening with a glimpse of the primeval forest, the spectators were carried rapidly through some of the early treaties between the Indians and the invading white man. Following the passing of the red man came the destruction of the forest, and finally a picture of the dawn of a new era of reconstruction. Part of the measure of the value of his civilization will be the white man's success in restoring intelligently as much as need be of what he destroyed thoughtlessly.

With this idea uppermost in the minds of all the spectators, President Alain C. White of the association presented a roll of birch bark, representing the deeds to the forest land, to His Excellency, Governor Templeton. The Governor received it for the State and on behalf of the public. The originators of this idea hope that there may be many People's Forests in Connecticut.

Forestry Activities in Vermont

Last spring Vermonters outplanted over 900,000 trees on waste land, making a total to date of over 10,000,000. Some of the large lumber, pulp, and industrial corporations are reforesting at the rate of 100 to 150 acres per year.

There are approximately 20 municipal forests in the State, the largest being that held by the city of Rutland. It contains 1,800 acres, of which over 300 acres has been reforested.

Vermont has 18 lookout towers which are manned either by the State Forest Service or the Vermont Timberland Owners Association.---
P. H. Merrill, Ass't Forester.

Relationship of Fire Prevention and Streamflow J. K. Johnson, President, La. Forestry Association

It requires a great deal of water to operate paper mills. In the Great Southern Lumber Company's plants in Bogalusa, both for the sawmill and for the Bogalusa Paper Company, the Bogue Lousa Creek is drafted on quite heavily for water. On account of this present extremely dry year, when so many streams have dried up or nearly so, a shortage of water was feared here, for in addition to the usual demands another paper mill unit was about ready to be started. In

order to make ready for these emergencies, costs, estimates, and plans for securing water from other sources were carefully made, but to the surprise and satisfaction of all, the Bogue Lousa Creek is still bringing down from the hills and backwoods ample clear, running water to operate all the plants with no sign of going dry. And it is now October.

Why this good luck? The Bogue Lousa Creek has its source and tributaries in the hills which have during the past five years been logged off, and on these same hills is the scene of the major forestry activities of the Great Southern Lumber Company. Because of rather intensive fire protection during that time, quite luxuriant growths of grass, herbs, and trees have no doubt begun to conserve the waterfall, holding it in check, giving the ground time to absorb it, and thus feeding the streamflow uniformly and continuously through the springs.

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Forests an Asset to Hoosier Farmers

The attention of Hoosier farmers is being called to the fact that the reforestation of idle lands in that State is a paying proposition, especially since the enactment of the State law providing that lands classified for reforestation be assessed at only \$1 an acre. Charles C. Deam, State Forester for Indiana, points out that woods serve as a windbreak and sanctuary for birds that help destroy insect enemies of the farmers' crops, are a source of fuel and fence posts, and, in cases where the trees are of the maple species, yield an income from the sale of syrup. Farmers find it difficult these days to sell land which is not partly wooded, and real estate dealers declare that those farms possessing this feature are worth 10 to 15 per cent more than the ones not so supplied.--American Lumberman.

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Something New Under the Pennsylvania Sun

J. S. Illick, Penn. Dept. of Forests and Waters, announces the finding of the only middle-aged stand of Ailanthus trees that has thus far been reported in Pennsylvania. It occurs on the property of the Elliott-Fisher Company near the Dauphin County Home. The trees range in size from 6 to 12 inches and will be very helpful in supplying data about this tree, the wood of which has been found to be of considerable value in the manufacture of paper pulp.--Penn. Service Letter.

Survey Tree-Growing Possibilities

An extensive investigation and survey of the pine forests in Wisconsin has been undertaken by the Wisconsin Conservation Commission cooperating with the Lake States Forest Experiment Station at St. Paul, Minn., according to an announcement made by Elmer S. Hall, Conservation Commissioner.

C. L. Harrington, State Superintendent of Forests, said:

"The primary purpose of the investigation is to determine what Wisconsin farmers and others can expect in the future from the pine forests of the State. The growth of trees is being studied, together with period of replacement, the size of trees, and the types of soils in which different classes of pine trees will grow best. Special emphasis is now being placed on the jack pine, which investigators have found grows well in a sandy soil."--American Lumberman.

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Laying Foundations in Tennessee

Governor Austin Peay, in an address at the University of Tennessee, laid down a program for the constructive development of Tennessee. Seven propositions toward this end were given, among them a reforestation program of especial interest to all patrolmen. The Forestry Program is to provide for the reforestation of hundreds of thousands of acres of cut-over lands, these to be handled by forestry methods of conservation.

With the purchase of State forest lands, the reforestation of denuded forest lands, and sufficient funds to protect these forest lands from fire, Tennessee will have adequate timber resources in the future to supply her needs.--Tenn. Patrolman's Forest News.

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A Forestry Wedding Between States

Pennsylvania has joined hands with Maryland in cooperative forest protection in a most gratifying manner. The Mason and Dixon Line, that old historical political barrier, is no barrier at all when it comes to forest protection, and rightly so, for the forests must be protected, and interest and activity of forest officers knows no bounds.

The Forest Wardens of Pennsylvania have combated fires in Maryland, and the Maryland Wardens have fought fires in Pennsylvania. Our conditions are similar in many respects, our problems much alike, and our interests mutual. We cannot but envy Pennsylvania in her splendid

organization and large financial backing, but we are proud of our men on the firing line, some 250 Forest Wardens serving faithfully, not for the meager pay, but because they are actuated by a desire to render public service to the community, which, after all, is the mark of the true forester.

The Foresters of Maryland extend to the Foresters of her sister State of Pennsylvania congratulations and best wishes in the splendid service they are rendering to the commonwealth.--T.W. Besley, State Forester of Maryland, in Penn. Service Letter.

Virginia's Forces Mobilizing Against Red Enemy

It should be a source of satisfaction to us all to know that fifty-two counties have voluntarily undertaken to support systematic forest fire protection work in cooperation with the State. Our skeleton organizations now cover 9,572,000 acres of forest land in the State which needs systematic protection from fire. The total area of such land is estimated to be approximately 15,000,000 acres, including about 1,000,000 acres of barren land. Of this large area the Federal Government owns and protects approximately 500,000 acres. Virginia is now covering, therefore, approximately 66 per cent of the land which needs protection from forest fires with its skeleton organization of forest wardens. It does not, however, mean that 66 per cent of the entire problem is solved by any means for the reason that the situation demands much more thorough work than we are now able to do.--Va. News Letter.

Forest Recreation

Forest recreation is essentially a forest product and must be treated as such in any plan of forest management. Foresters must take the leadership in developing a program of forest recreation as an integral part of the plan of forest management, if the forests are to serve the citizens to the full. Forests must serve humanity and no forest possibility, whether social or economic, must be overlooked if American progress is to be maintained.--Alfred E. Hupp in Penn. Service Letter.

Story of State's Forests in Movies

The Massachusetts Forestry Association is offering the story of Massachusetts' forests in motion pictures. This is an educational film of three thousand feet, divided into three reels. The film has been booked for many showings, and much interest is being manifested by chambers of commerce, women's clubs, and other organizations under whose auspices forestry weeks for the school children are being put on. For the use of the film and a portable motion picture machine for projecting them, including a short talk by a forester, the association makes a small charge in order to cover the costs of producing the pictures.--American Lumberman.

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Sizing Up the Job in South Carolina

H. H. Tryon, Extension Forester of South Carolina, has outlined an excellent work plan, the object of which is to stimulate a widespread, thorough interest in more and better timber and its production; to bring out the fact that South Carolina possesses in her existing timber a valuable natural resource; and to drive home the lesson of the value of proper fire protection.

He intends to establish suitable demonstration areas where it will be possible to illustrate reforestation, fire protection, silviculture, management, utilization, growth and yield studies, and, as time permits, improved methods of naval stores production, woodlot estimating and operation, game bird refuges, insect damage and protective measures against it, and pulp and paper developments.

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Items from Texas Meeting

At a recent meeting of the East Texas Mill Managers' Association convention at Galveston, Texas, H. J. Eberly of College Station, representing State Forester O. H. Siecke, reported that the loss to the lumber industry from forest fires during the last year has been the heaviest of any one year since 1914, in spite of greater precautionary measures. This is due to the fact that 1924 has been the driest year in a decade.

In a discussion of kiln-drying methods, it was brought out that there are two unsolved problems in connection with the dry kilns even of latest design. One is the finding of suitable material for the lining of the interior of the flues at the bottom of the kiln. The other is the analyzing of the various gases produced in the kiln drying of lumber. A different chemical action is produced by each variety of lumber.--American Lumberman.

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Another Bolt from Established Traditions

Mr. Frank Brooks, firewarden in Adams County, Ohio, reported that during the summer a fire was caused by lightning hitting a large hickory tree. This is the first definite case on record of a fire in Ohio from this cause since the organization was started, although lightning is a very common cause of fire in the Rocky Mountain and Pacific Coast States.--Ohio Service Bulletin.

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Pennsylvania to the Front in the Protection Procession

The record of accomplishment in fire protection shown in a recent report of the Department of Forests and Waters for the State of Pennsylvania is indeed gratifying, considering the magnitude of the undertaking. Pennsylvania claims to have reached a state of protection from fire for its forests to-day which is not excelled by any other State. The organization includes more than three thousand workers. These fire fighters are equipped with first-class modern tools. The primary forest fire observation system includes more than one hundred towers, which were erected at a cost of \$100,000. Twelve hundred miles of roads have been constructed at a cost of \$300,000. Twenty-five miles of trails have been built to make State forests more accessible. Nearly a thousand miles of telephone lines have been provided. Based on a comparison of 1913 with 1923, the protection afforded by this Department has effected a saving of not less than \$2,000,000 in the latter year, with forty thousand acres less burning than in 1913.

The spring forest fire season of 1924 was the best since the organization of the Department. A small number of fires occurred and a smaller acreage was burned over than in any previous spring forest fire season. The records of the Department show that to date 35,329,559 ^{trees} have been planted on the State forests, and 32,473,733 trees have been set out by private owners in all parts of the State. During the entire spring of 1924 only one-tenth of an acre of planted trees was burned over.--Gleaned from Penn. Service Letters.

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Clear the Way for New Jersey's Fire Department

The past spring fire season has been in the nature of a try-out for the reorganized Forest Fire Service. The area burned is very much less than the average, due largely to the weather conditions. Nevertheless, the work of the enlarged force has been fully apparent. Like any new machine, it will not reach the peak of its efficiency

at first but must be adjusted to meet the deficiencies that develop. We have had 20 fires of over 100 acres in size and these few fires have accounted for 80 per cent of our burned area. A thorough understanding of the reasons for these shortcomings should fortify us for the future.--N. J. Forestry News.

Blighting News

It is interesting yet regrettable to know that the chestnut blight is now making its ravages in Tennessee. Recent investigations in the field by forest pathologists have revealed chestnut blight in a number of the counties of the State.--Tenn. Patrolman's Forest News.

Effective Cooperation

Active cooperation in locating second-growth oak stands suitable for the oak yield study now being carried on by the Appalachian Forest Experiment Station has been given by State Forester Jones of Virginia. A desire to participate in the study has also been expressed by State Foresters Besley of Maryland and Secrest of Ohio. The abundance of old "coalings" in Virginia and Maryland, with the consequent development of even-aged, second-growth timber, suggest that these States can furnish much material for the oak yield study. The second-growth hardwood stands of southern Ohio also afford good plot material.

Growth Studies of a Different Kind

Pennsylvania began to acquire forest land in 1898 and has purchased to the present time 1,131,277 acres. The Pennsylvania Forest Association is earnestly advocating the proposed Bond Issue for \$25,000,000 for the purchase of additional forest lands. From every point of view - economic, domestic, and social - this measure is of tremendous import to Pennsylvania.--Penn. Forest Leaves.

Redwood Reforestation Plans

Reforestation in the redwood districts of California has received quite a stimulus recently with the Save the Redwoods League

now assisting in the support of necessary research work. At a recent meeting of the league a special committee was appointed consisting of Major David T. Mason, forest engineer; Prof. Walter Mulford, head of the Department of Forestry, University of California, and Dr. D. T. MacDougal of the coastal laboratory of the Carnegie Institution of Carmel, California. While the work of the league in the past has been largely in the securing of redwood groves to be deeded to the State for park purposes, more attention will be paid to reforestation in future.--American Lumberman.

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A Good Showing

New Hampshire now owns forty-seven separate tracts of forest land, comprising a total acreage of 20,133 acres. Three of these - Crawford Notch, Cardigan Mountain, and A. E. Pillsbury reservations, each contain more than 2,000 acres.--N. H. News Letter.

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How It Is Done in New York

The State Conservation Commission has practically thirty million young trees growing, all of which will be ready to transplant in 1926. About 12 million of them are ready now, the others being young seedlings. These trees are white, red and Scotch pine, Norway spruce and balsam firs, and a few white cedars. The demand for young forest trees for planting on idle land has wonderfully increased during the past few years.

To encourage the profitable use of idle land by reforesting, the Conservation Commission supplies these young trees at \$2 a thousand for two-year-old seedlings and \$4 a thousand for three-year-old transplants, at the nurseries, to owners of private land, or free for planting on public land. This makes possible a return of upwards of \$500 an acre on an initial investment of from \$12 to \$18 when these young forests reach maturity.--Rural New Yorker.

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May These Forest Tribes Increase!

Massachusetts has 28 town forests to its credit varying from 5 to 500 acres in extent. Connecticut has two - Salisbury and Newtown. The idea is a good one. It ought to grow.--Conn. Wooden Indueg.

Bedtime Stories

The first paper mill in the United States was started on the outskirts of Philadelphia in 1690.

About 100,000,000 cords of wood have gone into paper in the United States since wood-pulp was first made.

About 1,000,000 pencils are manufactured from American wood every year. The average pencil will probably bring about 5¢ apiece, which means that the billion pencils represent a total value of \$50,000,000 annually. In 1861 the first pencil factory was established in the United States.

The greatest memorial avenue of trees in the world is planted along 24 miles of highway at Nikko, Japan. The planting was begun in 1651 and completed in 20 years.--Penn. Service Letter.

The Forestry and Blister Rust meeting held on the Leighurst Farm at Waterford, Vermont, recently was attended by a large number of people from New Hampshire and Vermont.

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Shortleaf Pine Seed Sent to Japan

One pound of shortleaf pine seed, which contains more than 50,000 seeds, has been sent from the State Forest School at Mont Alto to Prof. Mitsumaga Fujioka of the Forest Experiment Station at Fukuoka, Japan. The seed sent to the Orient was collected from a stand of shortleaf pine near Mont Alto, which is the most northern inland station of mature shortleaf pine in North America. Prof. Fujioka is planning to introduce into Japan a large number of useful foreign trees from various parts of the world. This pound of shortleaf pine is Pennsylvania's contribution to this new arboretum in the Island Empire of the East.--Penn. Service Letter.

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Results of Scouting for a New Idea

Mr. J. W. Pugh of the Tennessee Division of Forestry has outlined a plan used effectively in the schools of his district to get cooperation in fire prevention. Each school has been organized as a troop of "Forest Scouts," the teacher being the captain to the troop. The obligation is:

1. To set no fires.
2. To prevent fires.
3. To extinguish fires that start.
4. To talk fire prevention to parents.

A prize will be given to schools doing the best work.--Tenn. Patrolman's Forest News.

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A New Name for the Cornwall Forest

The Cornwall State Forest of Connecticut has been extended down toward the Housatonic River by the purchase during the past year of 524 acres making the total area 1806 acres. Following the policy already adopted of giving the forests Indian names so far as possible, this will hereafter be called the Housatonic Forest.--Conn. Wooden Nutmeg.

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A Study of "the Murmuring Pines and the Hemlock"

A plantation of hemlock, Norway spruce, and white pine was established in 1910 near Clearfield, Pennsylvania, in a sandy loam soil, about site quality #2 for white pine. The site is high, has an elevation of about 1100 feet, and a very good drainage. The trees were planted in rows, first a row of hemlock, then a row of Norway spruce, then another row of hemlock with white pine at different intervals. All of the trees were spaced 5 x 5 feet apart and when planted were six years old (3 x 3 transplants and 3 feet high). At present 98 per cent are living. The Hemlock has a height of 28 feet, with a breast-high diameter of 5"; Norway spruce 25 feet, diameter of 4"; White pine 24 feet, diameter 3".

Hemlock in the first fifteen or twenty years makes a better growth than the white pine or Norway spruce when the three species are planted under the same conditions, and hemlock plantations are as easy to establish as white pine or spruce, without their susceptibility to frost and insect damage.--R. B. Houpt, in Penn. Service Letter.

Reforestation by Cooperation

The Louisiana State Department of Conservation has accepted 14,810 acres of denuded lands from the Great Southern Lumber Company and placed it under a reforestation contract which covers a period of twenty years. All of the lands under contract have been completely denuded of timber with the exception of a few small seed trees averaging 2 to 4 to the acre, from 8" to 10" in diameter. Many sections are completely denuded of seed trees and must be reforested artificially through the planting of seedlings. In order to meet this condition the company has planted 1,000 pounds of seed in 60,000 sq. ft. of nursery beds, from which it expects to obtain 5,000,000 or more young pine seedlings this fall. These will be planted 1,000 to the acre.

The Great Southern Lumber Company has displayed decided initiative in developing a constructive forestry policy for reclaiming waste lands which are not suitable for agriculture but are of great value for timber growing. It now has over 70,000 acres of denuded lands under contract with the State.--Condensed from La. Conservation News.

An Example of How Forestry Pays

The sale of pine on a two-acre plot of the Jackson Forest, one acre clear-cut and the other thinned, yielded a net profit of \$233.08 for stumpage. The four acres now included within the experimental cutting area, only one of which was clear-cut, have yielded a net profit of \$314.00, or nearly \$80 per acre. The entire 43-acre tract was purchased for \$800 in 1915.--N. J. Forestry News.

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Extending the Forests in New York

Four hundred thousand forest trees were planted in demonstrations in 39 counties in New York in three weeks, through the cooperation of the State Department of Forestry, the Department of Forestry of Cornell University, and the Extension Service, U. S. Department of Agriculture. Last February, State Forester C. R. Pettis offered to furnish through the Extension Service 10,000 forest trees to each county which might desire to conduct forest-planting demonstrations upon farm-owned land. Extension Director M. C. Burritt immediately accepted the offer and turned the matter over to the Extension Forester to work out with the county agricultural agents.

Arrangements were made to plant the trees about 6 feet apart in plots of at least 1 acre on nonagricultural land. This required 1,000 to 1,200 trees to the acre. No cultivation was given the trees, and for several weeks after they were planted, there was little or no rain. In spite of these conditions the Extension Forester stated that more than 64 per cent of the demonstrations show more than a 60 per cent stand, and that only 13½ per cent were classed as failures.--G. H. Collingwood, Extension Forester, U.S.D.A., in "This Looks Good."

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The California Spirit Germinating in Louisiana

Development of Louisiana as an industrial State is typical of the change that has come over the South, formerly an agricultural section solely. Louisiana is third among the States of the South in manufacturing and sixteenth in the United States.

Louisiana leads the world in production of mahogany lumber and the United States as a producer of cypr and southern pine. It is second in hardwoods, first in molasses and first in sugar. It is rapidly developing the manufacture of plate glass. It has more miles of navigable waterway and more undeveloped resources than any other State. It is first in naval stores production.--La. Conservation News.

(Query.--What does this "mahogany" look like when growing in the woods? Ed.)

Ohio Also Decides to be on the Lookout

Firewardens will be particularly interested to learn that a 60-foot steel fire lookout tower equipped with stairs and an observation cabin at the top has been erected on a high hill at the head of Bear's Nest Branch of Herbert's Fork about two miles north of the Game Preserve Lodge. The tower will give excellent protection to both the State forest on which it stands and to the Roosevelt Game Preserve which is close by.--Ohio Service Bulletin.

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Rapid Multiplication in the South

In 1923 the Great Southern Lumber Company established its first nursery and planted 1,000,000 seedlings on 1,000 acres. The cost of planting did not exceed \$4 per acre.

This year the company increased its nursery beds for pine seedlings 60,000 square feet, making the individual beds from 100 to 300 feet in length and 4 feet wide. Seven hundred and seventy-eight pounds loblolly seed (Pinus taeda), 165 pounds of slash seed (Pinus caribaea), and 40 pounds of longleaf seed (Pinus palustris), a total of 983 pounds of seed was sown this spring. The seedlings will be ready to plant directly after November 1. In a period of 9 months young seedlings are obtained from 6 to 14 inches in height, and in a period of 12 months 5,000,000 young pine trees will have been grown from seed to final planting.

This is very unusual in forestry practice and can be done only in the South in the Coastal Plain, which enjoys a long growing season. In the North and Northeast, and in Europe, it takes two to three years to raise conifer seedlings for transplanting to the woods, the average cost for raising and transplanting varying from \$20 to \$40 per year. In the South it has been demonstrated that it takes but eight months from seed to the woods at a cost of not less than \$3.50 per acre and not over \$4.

In an attempt to further reduce the cost of planting denuded areas, this company ploughed under fourteen hundred acres and dropped pine seed at intervals of 6 feet in the ploughed furrows which are 8 feet apart. This method has proven very effective and, unless unforeseen damaging factors occur, this latter method will be the method used for future reseeding, abolishing nursery work and reducing the cost to at least \$2 per acre.--Condensed from La. Conservation News.

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Distribution of Seedlings for Forest Planting

Our arrangements for distributing forest tree seedlings at cost to New Jersey forest planters have proved so satisfactory in the past two years, when more than 700,000 seedlings have been distributed, that the State Forester is again collecting orders for young trees to be delivered in the spring of 1925. Two-year-old seedlings of Red or Norway pine may be had at \$4 per thousand, while Norway spruce and Douglas fir will cost \$6 per thousand. Interested persons should place orders as soon as possible with the State Forester.--N. J. Forestry News.

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A Growing Business

Figures compiled at the Harrisburg office show that 427 private owners of forest land have already applied for forest trees for planting in the spring of 1925. The orders that have been received call for 3,222,853 trees. This is the largest number of trees that has been applied for at this season of the year since the Department began to distribute nursery stock.--Penn. Service Letter.

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Decay Causes Huge Timber Losses

Over nine billion board feet of forest products in service, almost one-sixth of our annual cut, are lost annually through decay, according to estimates by the Forest Pathology office located at the Forest Products Laboratory. Of this amount it is estimated that almost five and a half billion board feet could be saved through various measures of decay prevention; at current prices of lumber this would come to over \$200,000,000.

The greatest losses are in lumber and dimension material, ties come second, and if fence posts alone were adequately protected, over a hundred million board feet could be saved each year. These items are from data originally prepared for the McNary committee.

EDUCATION AND EXTENSION

Correspondence Course in Woods

An opportunity to learn the latest available information on the properties and uses of different kinds of lumber is offered in the new home study course to be given by the Extension Division of the University of Wisconsin, with the assistance and cooperation of the Forest Products Laboratory at Madison, Wisconsin. The nature of the course, which will be given under the direction of Arthur Koehler, is such that it will be of value to all who handle timber products, whether millman, manufacturer, dealer, or ultimate consumer.

It will consist of twelve assignments, and will cover the following subjects: structure of wood, physical properties, strength of mechanical properties, factors affecting the strength of wooden members, chemical properties, air seasoning, kiln drying, deterioration, protection against fire and decay, factors governing uses, kinds and quantities used for various purposes, and measurement and grading. Additional references are given so that further study may be pursued along particular lines.

All inquiries concerning the course should be addressed to the Correspondence-Study Department of the Extension Division, University of Wisconsin, Madison, Wis.--American Lumberman.

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A Scholastic Increment of Growth

The freshman enrollment of the New York State College of Forestry for 1924-25 is one of the largest in the history of the college. One hundred and twenty-one students have entered, 108 of whom are from the State of New York, 4 from New Jersey, 4 from Pennsylvania, 2 from Maine, 1 from Massachusetts, 1 from New Hampshire, 1 from Ohio.

There are over 60 professions represented by the families from which students have come, farmers and the owners of forest land leading the list.

There are 16 transfers from other colleges which, together with the number of new students who are taking graduate work, makes a total of 140 new names on the rolls of the college. There are at present 313 students enrolled.--G.A. Whipple, Extension Service.

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Contacts Devoutly To Be Wished, Eh?

An official report says, "Representatives of Cornell University made face-to-face contacts with 1,374,249 persons in the last year." Commenting on that remarkable performance the Ohio Extension Service News grows poetically eloquent as follows:

"Behold: A sonnet is a Piece of Work Projected,
Planned, Directed, Supervised
From Concept to Objective; Organized
In Scope and Form and Function.

(Never shirk,

O Muse, the Follow-up! Aid me to seize
Each Step and Aim and Goal! Cooperate,
Commune, Confer, Concur, Coordinate!
A little Splendid Spirit, if you please!)

"Answers by Muse with ribald snickers: 'I
Have just been reading the report above.
Sweet cats and dogs! Ah me!

Great land o' love!

It makes me snort and giggle, sniff and sigh,

How educators can take words and twist 'em.

Face-to-face contacts! Gee! They must 'ave kissed 'em!"

(The Cornell Extension Office has probably been flooded with applications for positions in that Service.--Ed.)

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Science Teachers Cruising for Information

A teacher from Denver, Colorado, who represented a group of teachers of general science and biology, enrolled at the Summer School of Columbia University, 1924, visited the Forest Service recently. These educators, who had formed a committee to obtain all the information available on forestry in connection with the teaching of general science and biology in order to incorporate the subject of forestry in their curriculum, are desirous that the pupils under their training may be made acquainted with the public importance of forestry and the work being done to preserve the forests. The visit of this teacher to the Forest Service emphasizes the growing interest of the schools in the subject of forestry.

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Tree Spacing Experiment in Pennsylvania

In the Annual Report of the Director of Pennsylvania State College it is stated that in addition to trees previously planted in this spacing experiment, the following were set out in April, 1924: European spruce, Japanese red pine and Japanese black pine. Sample plots were spaced 5x5, 6x6, 6x8, and 10x10 feet. These species have also been planted with each other and with species previously reported in lines, groups and blocks to determine the best methods of mixture. Analyses are being made of the soils of each plot.--Penn. Service Letter.

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Southern Pine Association Works Through Schools

For some years a large number of architectural and engineering schools have been using the Southern Pine Manual as a textbook and a concerted effort is now being made by the Southern Pine Association to increase that number, as well as to introduce to the young architects and engineers the association's specific booklet, which embodies the new American Lumber Standards, and such other literature as may prove helpful in the pursuance of their studies. With this end in view communications have been addressed to the deans of 156 of the principal technical schools located east of the Rocky Mountains, included in which are copies of the association's publications. Further cooperation between the schools and the association has been invited in order that the students when they leave college may have a knowledge and appreciation of southern pine and be prepared to specify it properly.

Publications are also being placed in the manual training departments of agricultural colleges, and a home book in which the students of home economics are keenly interested has been prepared for women's colleges. Special booklets telling the story of lumber and its uses are being distributed to elementary schools.--American Lumberman.

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Woodworking Courses in the Universities

Hon. George Fowlds, president of the University of Auckland, New Zealand, on the occasion of his recent visit to Portland, said:

"It seems to me that the subject of university courses in wood working is a very proper and fitting recognition of the art of woodcraft. Here is a need and a field the Department of Forestry in the Auckland University, I am sure, can worthily assist and it will be my pleasure to see that such services are rendered when the opportunity

arrives. The forestry department in the university is new and is feeling its way. It is broadening its activities to embrace the more important phases of the work. Each year the value and need of instruction in forestry is being recognized as of more importance by the people of New Zealand who, like the people of the United States and Canada, have been prodigal and wasteful with their timber resources."--The Timberman.

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A Story of Planting from Story County, Iowa

During the tree planting season just passed, Story County completed the first county-wide campaign to stimulate interest in this work, especially in the matter of windbreaks for farm lots and farm buildings. The movement began with the establishment of several demonstrations during previous seasons and was followed by requests for plantings during the past spring.

After the proposal to establish a demonstration in each township on a systematic basis was approved, applications were requested from those who were interested in cooperating in the work. Fifty-two applications were received and to these applicants a questionnaire was sent. From the answers returned the selection of co-operators was made, and this selection was followed up with a field survey of the proposed plantings by a specialist from the Extension Service to determine the location of the plantings, the type, number of trees, etc.

A definite week was appointed in which all the demonstrations were to be made. Three plantings were selected as training demonstrations and were established under the direct supervision of the Extension Specialist. The other co-operators were requested to come into one of these demonstrations, get an idea of how the work was done, and then go back and set out their plantings as demonstrations in their locality.

The entire program was carried out almost as planned. The key to the success of the entire program was the interest of the local people and the arrangement of the plans by the county itself.--I. T. Bode, Extension Forester.

International Relations in Forestry

Dean Mann of the New York State College of Agriculture has been selected by the International Education Board to organize its agricultural activities in Europe. That board was established by John D. Rockefeller, Junior, in 1923, and aims to promote international education, with special reference at the outset to general science and agriculture, by exchange of personnel and other appropriate means. The board is much interested in forestry and has requested that a definite program be presented for its consideration. This seems to offer a remarkable opportunity for bringing the foresters of this and other countries more closely together and for enabling us to take advantage of the best that Europe has to offer in the development of forest research here.

Inviting Glimpses of Forestry in Sweden

The trip across Sweden from coast to coast was most interesting. I estimate that the land bordering the railroad was about 50 per cent forest. I could not detect a single fire scar or burned stump along the whole distance. Thrift and sanitary appearance of forest stands are striking, for practically all the land is privately owned and usually consists of farm woodlots.

The forest school is wonderfully appointed. The collections are very extensive and complete, neatly kept, and carefully displayed and labeled. Even outside on the grounds, which are closely set with experimental blocks of planted trees and arboretum specimens, labels are attached to all the trees.

Education is almost worshipped in Sweden. In fact, the highly educated classes are almost a caste with hereditary privileges. For a student to earn or to work his way through college is very, very rare. The regulations of the Forest Research Institute are of interest as regards personnel. They provide for employment of:

- 3 persons of "Superior Forestry Education" - M. F. or better
- 6 " " "Inferior Forestry Education" - B. S. in F. or better
- 5 " with degree of Doctor (Ph. D.) or having passed final university examinations
- 2 persons with Bachelor of Science degrees

In addition, this institute employs 5 or 6 women assistants constantly computing sample-plot data, timber survey results, getting out curves, graphs, etc. None of the trained men would devote time to such routine details.--Brief items from two interesting articles by Prof. Perry in Penn. Service Letter.

Yale Forest Field Day

The second annual Field Day on the Yale Forest near Keene, New Hampshire, was attended by sixty woodland owners and foresters. The program included a tour of some of the more interesting parts of the forest and a basket lunch. Part of the afternoon was occupied with talks by Professor Toumey of Yale; Prof. Karl W. Woodward of the University of New Hampshire; S. T. Dana, Director of the Northeastern Forest Experiment Station at Amherst, and Guy C. Hawkins, Forester for the New England Box Company.

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Topics of the Times in Idaho

As noted in the Idaho "Forestry Bulletin," the University of Idaho School of Forestry published monthly from January to June a forestry bulletin. The first six issues featured successively:

- (1) The Forests of Idaho
- (2) The Lumber Industry of Idaho
- (3) The Trend of the Lumber Industry in Idaho
- (4) The Forest Fire Situation in Idaho
- (5) The Forestry Situation in the United States
- (6) The Forest Resources of the World

The subjects for the issues scheduled to appear during the present university year have not yet been announced, but each number will be devoted to the dissemination of information concerning the forests and forest industries of Idaho.

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Please Come to Order

A gavel made from the wood of old Concord Bridge has been presented to Dr. Payson Smith, State Commissioner of Education, by the school children of this famous Massachusetts town. The gavel has been sent to Washington, D. C., by Dr. Smith to become a permanent possession of the National Education Association.--American Lumberman.

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Six Forest Commandments

The Georgia State College of Agriculture has issued a circular on "Farming the Forest." This was worked up in cooperation with W. R. Mattoon, Forest Service Extension Specialist, and contains the following commandments on how to grow pine timber in the South:

- (1) Cut no promising trees measuring under 12 inches on the stump.
- (2) Cut low stumps (12 inches or under); save the best timber.
- (3) Leave two bushy-topped seed-producing trees on each acre.
- (4) Take care not to injure the young timber.
- (5) Pull the tops of all cut trees away from living timber; save it from the worms and possible fires.
- (6) Keep out fire at all times.

"Ranger Bill" from California Tells of His Job

"Every time I see one of them signs," said Ranger Bill, pointing to a gigantic '57 on the distant hillside; "it reminds me of this here job of mine, that started from almost nothing and has kept spreading and growing like the pickle man's varieties. Times were when if a fellow could wrangle horses and throw a diamond hitch, he had about all the necessary qualifications to hold down a ranger district in the National Forests. But as the poet said: 'Them days is gone forever.' You've got to know how to use your head as well as your hands and feet nowadays if you're hankering to stay on Uncle Sam's pay roll. Out here in the mountains, perhaps you've noticed that there's always room in the forest for new trees, and I reckon the same ought to be true of a man's mind - he's got to have plenty of open-minded brain cells where the seeds of new ideas can get a healthy start. If you don't grow with your job, your job's mighty liable to grow without you. That goes, whether you're a big business man or just a plain work-a-day forest ranger like me.

"This little line of chatter I've been giving you reminds me of a man I met not long ago that thought all us fellows have to do is to ride around the woods and enjoy the beauties of nature. Well, I wasn't surprised at his ignorance, no, r, not a bit. Why, a lot of the folks that come up to my district year after year for a vacation - and a heap of them know me well, too - seem to think my main job is herding tourists and cleaning up the camping spots they leave

littered with lunches and papers. I admit I have to do quite a bit of this recreation work since the National Forests has grown to be such popular summer playgrounds, but mostly its spare-time work, after my regular jobs are done and other folks have called it 'a day.'

"What all is a forest ranger expected to do? Well, let me tell you a few of the things I have to handle, and you can judge for yourself if this job is a 'cinch.' Mine is just an ordinary-sized forest district - about 200,000 acres of rough mountainous country, mostly timbered, but with some grazing land, mining, water-power sites, and quite a bunch of summer homes and free public camps. Before they put me in charge here I was a forest guard for two seasons, and had to pass a good stiff Civil Service exam., for you know the Forest Service is one branch of the Government where politics count for about as much as a zero with the rim knocked off. After that, I worked a whole year as assistant ranger before the supervisor figured I'd picked up enough sand and common sense to turn me loose on my own hook. Right now the best part of my work is handling timber sales, as I've got a bunch of lumbermen cutting Government timber on my district. I have to know all the trees and what they're good for; how to cruise and estimate the stand; how to mark green timber for cutting under forestry rules; all about scaling the cut logs, and see that the brush is piled and burned and that the young trees left for a future crop are not injured or destroyed by the loggers. Believe me, there's an inspector around, too, every once in a while to see that these things are done right.

"Next comes the supervision of the cattle and sheep grazing. A ranger is supposed to be able to call all the forage plants by their first name; to know the different breeds of livestock and the brands and earmarks of every permittee on his district; whether a range is under or overstocked, and how much salt a steer or sheep ought to get in a season - and it's up to him to see that they get it.

"Then there's fire fighting, which is the ne plus ultra, (Meaning the last straw, no doubt.—Ed.) as our solicitor says, of a ranger's job. Spring, summer, and fall I'm dreaming fires, and when it gets good and dry I hate to look up at the mountains for fear some of you fellows that come here for a vacation have gone and thrown your cigarette into the brush, or gone off and left your camp fire burning. All a fellow ever learns about fighting forest fires he gets in the school of hard knocks and experience. No two fires are ever fought alike, and if there's any job where you need a cool head it's when you have to handle a big gang of inexperienced fire fighters in a country that's full of smoke and flames. Yes, it's dangerous all right, but a fellow never stops to think of that when the woods are going up in smoke. Fighting fire is, bar none, the meanest job in the world - if you don't believe me, come up and try it next summer.

"Besides all these big jobs, so to speak, I have to know how to lay out and build roads and trails, telephone lines, cabins, bridges, fences, corrals and fire lookout towers. Surveying with a compass is supposed to be 'pie' for a ranger, and you've got to be able to tell all about land lines, section corners and the mining and homestead laws. On the side I examine mineral claims, take streamflow measurements, record weather data, lay out sites for summer homes and public camp grounds, post fire and distance and direction signs in the woods, keep my ranger station and guards' cabins in good repair and a few score of other odd jobs. Come to think of it, I also have an assistant ranger and eight guards to round up and keep busy, to say nothing of a couple of road and trail crews.

"Busy? Well, yes, we rangers manage to keep out of mischief all right, both summer and winter. The boss expects us to be in the field about seventy-five per cent of the time, and after all these woods jobs are done and a few squabbles among the forest users in the district settled, a fellow can always sit down at night and write up his diary and beat out reports on the typewriter. But it's a great life and I wouldn't trade with you for the best city job in the world."--Cal.
News Notes for Forest Schools.

Survival of the Fittest in Iowa

A recent inspection of new plantings established in Iowa in the spring of 1924 has shown some good results. Among the conifers the lowest survival so far is a little over 85 per cent. The average will run around 91 to 93 per cent. For the hardwoods the survival is 90 per cent or better.

During the spring of 1924 there were planted in this State under cooperative agreement with the Forestry Experiment Station and Forestry Extension Service more than 24,000 trees and over 7,500 cuttings. While this may seem insignificant to many foresters not acquainted with our type of planting, it means, nevertheless, demonstration plantings established in about 12 counties and it includes a county program of planting in which a demonstration shelterbelt was established in each township. This latter was a very successful piece of work.--I.T.Bode, Extension Forester.

Large Class in Kiln Drying

The September instructional courses in kiln drying and wood properties at the Forest Products Laboratory at Madison, Wis., were attended by twenty-four students from the following States and territories: Arkansas, California, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Michigan, North Carolina, New York, Ohio, Pennsylvania, Philippine Islands, and Wisconsin.

Included in the group were representatives of lumber manufacturers, wholesale and retail lumber dealers, manufacturers of dry kilns, bedroom furniture, pianos, chairs, showcases, kitchen cabinets, caskets, electrical goods, automobile wheels, excelsior, doors, and window frames.

The next course will be given early in December.--American Lumberman.

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When White Pine "Comes Back" and When it Won't

The vast burned-over forest areas of northern Idaho afford an excellent opportunity to study the reaction of western white pine to fire. Studies by the Priest River Forest Experiment Station at the head of the Coeur d'Alene River have recently been made in a tract of 100,000 acres burned successively in 1870, 1889, 1910, 1919, and 1923, several of the burns overlapping and affording examples of the effect on the forest of double burns.

Tests and observations show that western white pine will renew itself satisfactorily on reasonably moist areas that have been burned once only. In such cases the majority of the young seedlings come in three to seven years after the date of the burn, owing to the slow process of germination and the fact that pine seed in the duff or stored by rodents remains viable for several years. Artificial planting must, however, be practiced on lands burned over twice, if satisfactory new growth is to be obtained in less than 40 or 50 years. The Experiment Station reports no single instance under their observation where a desirable natural reproduction has come in on these double burns. The second burn has in every instance wiped out practically all possibility of new growth. These findings are considered important for direction of all planting activity on burned-over white pine lands.

FOREST SERVICE NOTES

The Clarke-McNary Wing Should Cover Alaska Also

B. F. Heintzleman, Ass't. District Forester, Alaska

The Clarke-McNary Law which forms the basis of an enlarged Federal forest policy indicates a public desire to have all forest lands in the United States kept in a productive condition and it authorizes and directs the National Government to interest itself in the protection and management of such lands regardless of ownership. Government-owned lands are included in its provisions and it seems only logical that forests of the public domain should be about the first to receive attention under the terms of the Act. Neglecting forest lands for which the Government alone is responsible while advocating and assisting in the protection and management of patented lands would be inconsistent. Also, such a course would mean an incomplete program of work under the forest policy act in that very extensive areas would be left without proper supervision.

The interior of Alaska has a forest fire protection problem clearly worthy of consideration in connection with the new Federal forest policy. All of the lands involved are Government-owned, the area is very large and the fire risk is high. It is a problem that needs extended study before any actual protective work is attempted as no one has more than a superficial knowledge of the extent and value of the forest resources and the cost of a protective system. The whole matter is entirely up to the Federal Government. The forested States can be expected to take the lead in protection on State-owned and private lands, asking only Federal cooperation, owing to their direct interest in such protection, but interior Alaska has practically no private or Territorial land, the whole region, forested and unfor-ested, being open public domain of the United States.

Estimates, which amount to little more than mere guesses, have placed the forested area of Alaska outside the National Forests as high as 75,000,000 acres. The great bulk of this land lies in interior Alaska on the drainage areas of the Yukon, Kuskokwin and Copper rivers. The principal trees are white spruce, white birch, black spruce and various species of cottonwood, the first two being by far the most important and growing in mixture on the better soils. At least 5,000,000 acres carries forests that can be classed as sawtimber, with an average yield of 5,000 board feet per acre. The remainder of the forested area carries trees of pole size, 4" to 10" diameter, with the exception that the white spruce is somewhat larger, 12" to 16" in diameter. This small timber will never contribute to the general lumber markets but it has a high value for local use and can assist very materially in the development of the agricultural, mining and other industries which eventually will be important in the sections where these forests are located. Also, when one considers the low yields per acre in cordwood of many spruce forests now held by large pulp and paper companies in eastern Canada it takes little imagination to believe that the white spruce, black spruce and poplar of interior Alaska will some time be utilized for paper manufacture.

The first work toward bringing these interior forests within the scope of the new Federal forest policy is an extended reconnaissance to determine the location and extent of the areas having timber resources entitled to protection on the basis of quantity and quality and the probable cost of an adequate protective system. The estimated cost of this reconnaissance is \$25,000. In the opinion of foresters who have visited parts of this region the expenditure is well worth while. Most certainly in the carrying out of a Federal forest policy 75,000,000 acres of Government-owned timberland should not be passed by. A careful study of its present value and future possibilities may show that its protection is decidedly in the public interest.

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The Siamese Twins in Alaska - Paper Industry and Water Power

Some think it is only a question of time when the shortage of newsprint paper stock in the United States and Canada will compel the manufacturers to go to southeastern Alaska for their pulp timber. A report on water power in Alaska has just been published by the Federal Power Commission, Washington, D. C., and contains a great deal of interesting information on this subject.

The two National Forests in Alaska, according to some estimates, can produce about 2,000,000 cords of pulp-wood every year for all time under scientific forestry practices. Translated into paper this means an output of 5,000 tons of paper every day. Excellent water power sites are abundant in southeastern Alaska, the report states.

Under the procedure adopted by both the Forest Service and the Federal Power Commission the sale of timber and the leasing of power sites are linked together, the National Forest areas having been allocated to provide ample timber supplies for all time to cover any possible needs arising from leasing water power sites located within such forest areas.

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Two New Eastern Game Refuges Created

President Coolidge has signed a proclamation creating two game refuges on the Cherokee National Forest in Tennessee and Georgia for the protection and administration of game in that region.

Originally all sorts of wild life native to the region thrived there, and an effort will be made to restore the game through protection and possibly through planting of desirable species. Deer and wild turkey are well adapted to this general region. The success of the effort made will depend very largely on the cooperation of interested citizens.

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Fires on National Forests, Calendar Year 1924
To and Including September 30

Number of fires

<u>District</u>	<u>Class A</u>	<u>Class B</u>	<u>Class C</u>	<u>Total</u>	<u>Number of Acres N. F. land burned over</u>
1	970	362	177	1,509	34,200
2	171	124	65	360	8,577
3	30	446	221	697	8,600
4	462	153	92	707	22,566
5	816	548	451	1,815	337,607
6	1,038	514	355	1,907	70,000
7	12	67	116	195	23,191
8	46	30	13	89	6,655
Totals	3,545	2,244	1,490	7,279	511,396

Comparison with a few other bad years:

<u>Year</u>	<u>Expenditures (Fire Fighting)</u>	<u>Number of fires</u>	<u>Number of Acres N. F. Land Burned Over</u>
1923	\$ 276,598	5,168	363,848
1919	2,934,493	6,800	2,007,034
1917	1,046,933	7,814	962,543
1900	1,037,254	5,201	4,134,253
1924	\$1,472,385	7,279	511,396

Ten Thousand Forest Fires to Yield Helpful Conclusions

The Lake States Forest Experiment Station at St. Paul is studying the records of 10,000 forest fires in the Lake States in order to tabulate the facts they may yield as to the forest fire menace and the best way to guard against it.

Although the work on these past fires is just beginning, it is already clear that the Lake States have two distinct seasons of bad fires to be prepared for every year, and a third equally disastrous in years of unusual drought. In the spring after the snow has melted and before the grass and other vegetation has leafed out, and in the fall after the leaves have fallen and the ground cover has been killed by frost, are the two seasons of extreme fire danger. At these times fires spread quickly, particularly where logging has recently been under way and the ground is covered with dried-out debris. The third season of danger is the unusually dry summer, when much of the ground cover dries up and forms ready tinder.

Turning Peat Bogs into Forests

Americans have read of peat bogs and swamp forests in Europe without perhaps realizing that in the northern portions of Minnesota, Wisconsin, and Michigan are 9,000,000 acres of swamp land, much of which, it is believed, is potential forest land of considerable value. One of the projects of the Lake States Forest Experiment Station at St. Paul is to determine the effect upon timber growth of the removal of excess water from these swamps and the control of the water level in them.

Excessive drainage of these swamps is not considered desirable. In some cases, particularly in Minnesota, this drainage far in advance of the needs of agriculture has created a grave situation. Being drained dry and yet not utilized for agriculture, these peat swamps become a great fire danger. Fires here are difficult to combat, and it is not uncommon for such fires to smoulder all through the winter, only to become dangerous conflagrations when next summer's dry winds fan them into flame.

The proper drainage is only superficial, removes only the excess water above the proper water level, and is therefore a comparatively simple, inexpensive operation. Swamps so drained may double and even treble the volume of wood grown on them. Confidence is felt in these possibilities. The experiments now engaging attention will give the facts of yield and cost.

Road Information

The Forest Road System, so-called, consists of Forest Highways and Forest Development Roads. The former are roads of primary importance to the States, counties, and communities within or adjacent to the Forests; the latter are roads of primary importance to the administration, protection and development of the National Forests themselves. According to the Forest Service studies, the complete system of Forest Highways should include 14,725 miles and of Forest Development Roads, 25,927 miles. In addition to this 40,652 miles of road, it is estimated that 70,319 miles of trail will be required for proper protection, development and administrative service and also to accommodate travel.

Only about one-fifth of the total proposed road system is now in satisfactory shape. Existing roads of unsatisfactory type constitute more than half of the total proposed mileage. For about one-quarter of the mileage no roads now exist. In other words, it is a case of complete new construction. For trails the situation is considerably better, since the system is about one-half complete. To complete the construction and improvement of the Road System, it is estimated that the Forest Highway System will cost about \$133,564,000 and the Forest Development

Road System about \$61,877,000. The trail system, according to the estimates, will cost approximately \$9,366,000.--T. W. Norcross, Chief, Branch of Engineering, Forest Service.

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Influence of Growth Conditions Upon the Properties of Wood

What effect have conditions of growth on the strength of wood? Why is the wood in some trees stronger than in others of the same species? Such questions are of peculiar interest to the forester in planning to grow a certain class of products.

The results of a study of white ash conducted by the Forest Products Laboratory bring out some interesting facts not commonly recognized. A comparison of white ash from the Appalachian Mountains, the Mississippi Valley, the Ozark Mountains, and Ohio shows that the influence of locality upon the properties of the wood formed is not as great as the influence of other factors which directly affect the growth of individual trees.

Although it has been a common practice to judge the quality of ash by its rate of growth, this study showed that all wood of slow growth is not necessarily poor but on the other hand that white ash of rapid growth is quite uniformly of good quality. White ash trees having slow growth while young produced wood of excellent quality, but in trees undergoing a change in rate of growth from rapid to slow because of unfavorable conditions the wood of slow growth was greatly inferior to that produced earlier.

The influence of thinning upon the quality of white ash was demonstrated by three woodlots in Ohio. In two unthinned woodlots, the quality of the narrow-ringed wood in the outer part of the tree was from 8 to 11 per cent lower than that from the inner portion, while in another woodlot, of the same age as the others but which had been thinned, there was only one-tenth of 1 per cent difference in the exterior and interior portions of the trees.

Such investigations show that forest management will not only result in increased yields, but also in an improved quality of the product.

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Fire-fighting Interrupts Forest Research in California

The increment borer, diameter tape, hypsometer, psychrometer, hygrothermograph, and other implements and appliances of the forest research man's outdoor laboratory were laid aside this summer for the more prosaic implements of the forest fire fighter, who is in charge of the research activities of the United States Forest Service in California. All the research men were at one time or another called upon to assist in maintaining the fire lines upon the large fires. This has been by far the worst fire season that the California forests have ever known, within the years covered by the Forest Service records, and Forest Service men say that the situation there this year presented the hardest problem in fire control that they have ever faced.

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Woodman, Spare That Hemlock!

The future of hemlock is bound up with the methods of cutting in the old hardwood stands, according to the Lake States Forest Experiment Station. The 51,000,000 cords of hemlock now standing in Minnesota, Wisconsin, and Michigan, place these three States second only to the Pacific Coast as a source of this desirable pulp-wood. But the fact that all of this grows in mixture with the northern hardwood trio, birch, beech, and maple, makes the perpetuation of hemlock a problem. The hardwoods are clear cut almost universally. The hemlock, which grows as an understory to the hardwoods, and demands the shade and moisture thus secured has no chance to reproduce after cutting.

Even if the slash is not burned, the young hemlock, suddenly exposed to the light, dries up and dies. If, however, instead of clean cutting our hardwoods, a gradual cutting is adopted, such as suits particularly our old growth stands of the lower peninsula and Wisconsin, the perpetuation of hemlock is entirely feasible and a practicable thing.

The Lake States Station hopes soon to be in a position to study intensively a method of cutting hardwoods that will both increase the reproduction of those species and preserve the hemlock supplies.

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The Summer of Twenty-Four
By R. W. "Bummer" Ayres, Tahoe

Smoke and dust, fever and sweat,
The damndest season I've put in yet;
All you can hear, or think, or do,
Is fighting fire the season through.
All other work has gone to pot,
Our working plans are completely "shot."
(Suffering cats, will it never rain!)
My heart has a knock, my nerves are frayed,
My stomach's gone, my feet are splayed;
My eyes are dimmed from the back-fire smoke,
My lungs are sore, and my back is broke.
(Out in the West, where men are men,
It hasn't rained since Lord knows when!)
A column of smoke and a windy day;
It mushrooms up and drifts away.
But under that pillar of pearly gray,
Is the same old fight in the same old way.
Thirst and sweat, worry and grime;
She's jumped the line time after time
With a rip and a crackle, a rattle and roar;
We call for help and try once more.
(When winter comes, we won't be sore!)
The open spaces are free and deep,
The mountain slopes are long and steep;
The darkling canyon and rocky peak
I've climbed them all, 'till my legs are weak.
Scenery is what some folks may desire,
But it's rotten stuff on a forest fire.
(Oh, sunny Cal. is a joyful land;
It is like H---! Ain't Nature grand!)
A holiday for me would be,
On a southern isle in a balmy sea,
Where I could sleep, and eat, and shave;
And bathe myself in the purple wave;
In its tropical rains with its glad downpour,
I'd dream of the Summer of Twenty-four.

Yellow Poplar Seedlings Need "A Place in the Sun"

The problem of securing good new growth of yellow poplar as determined by results of work at the Appalachian Forest Experiment Station lies much more in saving the seedlings that have started than in worrying about whether or not the seed will germinate. It has been noted that yellow poplar seed requires very little, if any, encouragement to germinate successfully. The trouble comes later, when the young seedlings demand a generous share of light and moisture in order to become well established.

During the past year in Maryland and in northern Georgia several places have been found where yellow poplar has come in heavily following light ground fires in the spring of the year. But a typical instance was noted in Georgia, where seedlings came in at the rate of over one to the square foot in a second-growth stand of oak with some poplar intermingled. Some fifteen months after the fire this seedling crop was greatly reduced, with every evidence that smothering by leaf cover and lack of light due to the oak shade had been the main factors in this loss.

It has been noted that yellow poplar seed will even hold over a whole summer season and yet germinate successfully the following year. In another instance yellow poplar seeds blown several hundred feet into a pure white pine plantation came up in considerable numbers. However, owing to the density of the stand there is little chance that those seedlings will become well established.

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Three Millicn for a Billion

Each year the hum of industry is penetrating a little deeper into the timbered slopes of the National Forests and the year ending June 30, 1924, established a new advanced front. It is the first fiscal year with a timber cut of more than a billion feet and with net receipts from timber in excess of \$3,000,000. With fitting solemnity, let's dub it the "three million for a billion year."

There were 17 Forests with timber receipts of more than \$50,000 each, while 9 of these rolled up totals of more than \$100,000. The Stanislaus and Lassen in California, and the Crater in Oregon broke into the \$200,000 class, the Stanislaus with the amazing total of \$281,489.

The cut on each of 14 Forests exceeded 24 million feet, the Stanislaus leading with a total of 87 million. The cut on the Arkansas Forest in Arkansas was only 9 million but the timber had a contract value of more than \$50,000.--Harry Irion, Washington Office, Forest Service.

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Reforestation on the Michigan National Forest
R. H. Johnson, Ranger, Michigan National Forest

When the Michigan National Forest was placed under administration in 1909, an examination of the type of land comprising the main acreage of the Forest convinced the Forest officers concerned that, second to fire protection, reforestation was the big job to be undertaken.

The Forest, a typical jack pine sandy plain, had become repeatedly burned over until fully 50 per cent of the area supported no tree growth and but a sparse ground cover of grass, huckleberry or small bushes. Experiments to determine how best to artificially restock this area were at once commenced, varying from widely different methods of direct seeding, such as seed spot with hoe or corn planter, to broadcast sowing, using various amounts per acre and under different methods of sowing, to planting Norway wild stock pulled from the Minnesota Forest and shipped to Michigan in the spring of 1910. As all work must finally be judged by the results obtained, the direct seeding system was abandoned after the second year because of the lack of any living trees in evidence. However, the small plantation of Norway wild stock lived and continued to grow during this time and while the costs appeared abnormally high, \$24.77 per acre for 13.5 acres, the results were apparent in a good stand of living trees, and the solution of the reforestation problem appeared brighter. The next problem was to secure lower costs in the planting operation. From this small nucleus planting has increased until the total reached 5,314.8 acres at the close of the 1923 planting season. Of the 4651.8 acres which have passed through one or more growing seasons there are 4,159.2 acres now supporting more than 500 living trees per acre, 404.8 acres with between 250 and 499 living trees, and but 9.9 acres classed as a failure with less than 100 trees.

During the past three years, 3,232.2 acres have been planted mostly with Norway pine two-year seedlings, using an average of 630 trees per acre at an average cost of \$3.81 per acre, including all cost of planting and stock production. The lowest cost was secured in 1921 when 1,151 acres were planted at an average cost of \$2.93, using 630 trees per acre. In the fall of 1923, 1,153 acres were planted to 2-0 Norway pine, using 716 trees per acre at a cost of \$3.64 per acre.

During the past eight years, all planting has followed the furrow system, by which shallow furrows are plowed and the trees planted at the bottom of the furrow. By this system the number of trees planted per day per man averaged 2,700 for the entire operation during 1923, while many days, when no change was made in the personnel of the crew, the number exceeded 3,000 per man.

The average first-year survival counts for the last three years show 85 per cent living at the close of the first growing season, while the fifth year counts for the same period show 77.8 per cent.

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What Kind of Wood Is It?

Some thousands of requests to have wood identified - the record month was September, 1918, when 3,000 pieces were identified - come each year to the Forest Products Laboratory.

A few of these requests are to gratify curiosity, but usually they result because of some business need for the information. Requests by the wood-using industry are likely to increase in number as the desirability for substitution of species increases.

Among the interesting requests received was one to identify the wood used in a 16th Century painting of a Madonna and Cherubs. The wood was identified as poplar.

Wood dug up in excavations at Washington, D. C., was identified as cypress estimated by geologists to have grown thousands of years ago.

A man was convicted of murder in one instance when Mr. Koehler, who is in charge of Wood Technology, testified as to the kind of wood in a bomb used in the crime.

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Turpentine of Small Trees not Profitable

Operations on some 1500 second-growth slash pines and longleaf pines near Stacke, Fla., are tending to show that the tapping of 5 and 6-inch trees by naval stores operators actually yields a profit neither to the owner nor to the man who chips them. Not only, it is stated, does the yield of gum fail to pay for the labor of securing it, but trees of this size, tapped for three or four years, are left in such a weakened condition, or become so infested by worms and rot as a result of the chipping, as to be no longer capable of appreciable growth. Thousands and thousands of acres of trees too small to be brought to a sawmill, or even to be cut into railroad ties for preservative treatment, have been absolutely wrecked in the last five years.

It will be some years yet before trees below 10 or 12 inches in diameter can be made to yield a profit from turpentine in the average year. In the meantime, however, it is highly important that methods be worked out for chipping the smaller-sized trees that will not exhaust them and prevent their growing to sawlog size within a reasonable time. The Southern Forest Experiment Station is not only working on the problem of how to chip smaller trees without injury, but is also studying

conservative methods of tapping the larger trees that will result in greater total yields of gum and of lumber.

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Rats!

The Biological Survey has been working on the kangaroo rat pests of the Jornada Range Reserve in New Mexico, and 78,000 acres of badly infested land have been treated with poison. On the whole area 204,211 dens, or an average of 3.21 dens per acre, were found. Portions of the range reserve were so badly honeycombed by rat dens that in addition to the loss of forage, travel was dangerous because of the hidden pitfalls. Frequently in the early spring thin cows dropped into the covered holes and lacked the strength to get out. The cost of the treatment was .0193 cents per acre, or .0073 cents per rat.

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How Can This Danger Be Eliminated?

W. I. Hutchinson, California District, Forest Service

The pacemaker of man-caused forest fires is the pernicious cigarette. In the National Forests of California, out of a total of 1,539 timber and brush fires that occurred to September 10 of this year, 28 per cent was due to smokers -- and in practically every case that means cigarette users. And the number of such fires is steadily increasing year by year, keeping stride with the steady rise in the use of "fags."

United States Treasury Department figures disclose the fact that during the month of July, 1924, there was manufactured a total of 6,583,000,000 cigarettes; an increase of 750 million over the number turned out during the corresponding month in 1923. If this pace is maintained throughout the current fiscal year there will be made and sold in this country more than 77,000,000,000 cigarettes.

The Bureau of Internal Revenue reports that the consumption of cigarettes in the United States has increased 50 per cent in the last two years. Manufacturers of the "pills that satisfy" are turning out this year almost 1,200 cigarettes for every man and woman in the country over 21 years of age, or an average of three cigarettes for each person per day. And yet these same manufacturers, despite their knowledge of the fact that cigarettes are the chief cause of countless disastrous fires, have never yet given their whole-hearted support to any movement for public education in fire prevention and suppression.

This season in California, due to the hazardous fire conditions, smoking has been restricted to camp grounds and improved places of habitation on many of the National Forests. And it may not be a far cry to the day when like restrictions will be enforced on all hazardous fire areas. Anyone who has followed closely the fire game knows that the safeguarding of our forest wealth depends in no small measure on more complete and effective control of human agencies which cause fires,-

including smokers, campers, sportsmen, recreationists and commercial users of National Forest lands. The handwriting is on the wall, and it is to be hoped that among smokers and vacation seekers, as well as cigarette manufacturers, there may be found the Daniel of forest preservation who will interpret the all-too-plain inscription.

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Cease Firing!

On July 14, Lumberman Price rushed the Evinrude pump to an abandoned landing on the Standard Lumber Company's sale area and drowned out a fire that had suddenly resurrected itself after smouldering unseen for seven months and four days. This fire will have to be classed as anaerobic, for it held on from December 11, 1923, when piled brush was burned along the railroad right of way, until July 13, 1924, without a sign of smoke to indicate its presence. On July 14 it could hold its breath no longer and so burst forth only to be spotted immediately by a track walker.

The area had been covered with snow when the brush was burned and all looked safe, but it developed that a small line of fire had run several feet under the snow, burned its way downward to the bottom of a pile of bark and debris about three and one-half feet deep and then slowly worked its way to the top at the average rate of slightly less than two-tenths of an inch every twenty-four hours for 215 days.

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Boring for Facts in the Lake States

While the task of restoring to usefulness the 20,000,000 acres of denuded forest land in Minnesota, Wisconsin, and Michigan is yet in its infancy, enough has already been done by various Federal, State, and private agencies to form a basis of very profitable study. A survey study is being undertaken by the Lake States Forest Experiment Station at St. Paul. The plantations to be examined include those of the Forest Service on the Michigan and Minnesota National Forests, and similar plantations of the Michigan Department of Conservation, the Michigan Agricultural College, the Forest School of the University of Michigan, the Minnesota State Forest Service, the University of Minnesota, and the Wisconsin Conservation Commission. Examination of these areas will, it is expected, show the rate of growth that can be expected, the best species to plant, the effect of different methods of planting, the best size stock to use, and the damage done by rodents and other pests. The list includes both old, well-established plantations and others of more recent date on which up-to-date methods have been tried out.

Rather Heavily Bearded for that Portion of the Earth's Face

The revised estimates prepared on the Sitgreaves National Forest in Arizona for use in the management plan show one section on that Forest having an estimate of 17 million feet. That this amount of timber could be found on any one section in the Southwest has been seriously doubted by the men familiar with stands of western yellow pine. A check estimating strip run over four measured acres running across the drainage showed an average of close to 25,000 feet per acre which, if applied to the section which is all timbered, would, with the trees below 12 inches, of which there was a larger number, yield close to the revised estimate.

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Four Angles to this Problem

Forest research in the Appalachian region falls into four main lines of study and experiment, as carried on by the Appalachian Forest Experiment Station. These are: how the forest will reproduce itself, how to protect it against fire and other destructive agencies, how fast it grows, and how to so manage the forest as to obtain profitable returns.

From a forestry point of view the Appalachians are said to contain some of the most complicated problems to be found anywhere in the country. There are forty or forty-five kinds of trees of present commercial importance, and nearly as many others to be branded as "weeds." The forests have mostly been cut over one or more times, and fire has burned over a large part of the land, so that every conceivable sort of condition is presented.

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The Last Big Leaf Upon the Tree

In District 3 (Arizona and New Mexico) the Forest Service is about ready to advertise a unit of 500 million feet on the Sitgreaves Forest. This is about the last big mill proposition remaining in Arizona or New Mexico, which is ripe for exploitation in the immediate future.

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Forestry Regulations Amended

An amendment to the regulations governing the use and protection of the National Forests which makes it possible to close them against grazing by livestock during outbreaks of dangerous diseases of domestic animals, such as foot-and-mouth disease and scabies, has been signed by the Secretary of Agriculture. The amendment authorizes the District Forester, in case of need during outbreaks, to issue orders to remove cattle, sheep, hogs, or other animals being grazed on the forest or to prevent their movement into the forest except under special permit.--Official Record.

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Acreage Added to National Forests in East and South

The National Forest Reservation Commission recently authorized the purchase of 102,236 acres of forest land, offered by 77 different owners in 9 States, at an average price of \$4.16 per acre. In addition, the commission approved the extension of the Alabama National Forest so as to embrace 171,340 acres lying to the southward of the present boundary of that forest area, this acreage to be purchased in the future.

The purchase approved brings the total area which is being acquired for National Forest purposes in the East up to 2,437,553 acres.--Official Record.

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Singed but Safe

The San Gabriel fire on the Angeles National Forest, California, after burning for over 20 days and covering about 50,000 acres of brush and forested land, was finally brought under control on September 20 after a bitter fight waged by 2,000 men. Col. W. B. Greeley and Major Evan W. Kelley of the Washington office, together with 15 Forest Service officers from Arizona and a number of the District men from San Francisco, were on this fire to assist the local Angeles force. The Los Angeles County Forester's fire organization and many members of southern California fire protective associations fought side by side on the fire line with Federal officers.

Deputy Supervisor F. L. Kirby of the Tonto National Forest, Arizona, had a very narrow escape on this fire. He was on an inspection tour of the burned area in the Roberts Canyon country and was trapped by the flames. Col. Greeley in describing Kirby's experience said:

"I doubt if Kirby will ever give you a complete account of his experience on the San Gabriel fire. When the fire broke into Roberts Canyon below and behind him, he had ample time to get around it, but went on up the canyon to warn a messenger whom he had previously sent in that direction. In searching for the messenger he stayed too long and every chance of getting out from the fire, which was then coming up both sides of the canyon, was gone.

"By pure luck, or Providence, Kirby found what I am told is the only waterhole in that whole canyon, containing about two feet of water. The fire burned up the canyon and went over him while he soused himself in this pool and got what air he could by breathing close to the water. As it was, I personally think his escape from suffocation was very close. It is this sort of stuff in Forest Service men that always shows up in emergencies and that constantly renews one's pride in the organization."

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"Ellis Islands" for Forest Immigrants

In order to determine the suitability of foreign trees for introduction into this country, arboretums in which groups of such "immigrant" species can be tried out are being established by the U. S. Forest Service in several of the forest regions. At Wind River 60 miles from Portland an arboretum of this sort has now some 75 different alien species of trees growing in small-sized groups or clumps. These trees are carefully watched by members of the Pacific Northwest Forest Experiment Station, which has a branch station at Wind River, and their growth and general development and ability to become acclimatized are studied. Local records of climate and soil conditions are also maintained.

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Painting Characteristics of Different Woods

Does paint last better on white pine than on Douglas fir? Should painting methods vary with species?

Here are questions to which the paint manufacturing research workers have given scant consideration, although thousands of dollars have been spent in research on paint. At the Forest Products Laboratory the need for such a study has long been recognized but only recently has it been possible to attempt this research.

The study has now been instituted by erecting test fences of seventeen different species of wood at eleven different places in various parts of the United States, making possible for the first time a comprehensive comparison of the effect of different climates on the same paints applied in an identical manner. In these fences every

species studied is represented by two-flat-grain and two edge-grain panels, each coated with one of the two kinds of representative paints used.

At the Madison fence one set of panels has been left unpainted to determine what effect, if any, painting has in preserving wood from deterioration, such as checking, warping, weathering, and possibly, decay.

The species being tested are: Alaska cedar, cypress, Douglas fir, eastern hemlock, eastern spruce, redwood, Sitka spruce, southern yellow pine, sugar pine, western hemlock, western larch, western red cedar, western white pine, western yellow pine, white fir, white pine.

At least once a year a Forest Service representative will inspect the fences and make ratings on such factors as general appearance, condition for repainting, gloss, cracking, scaling, and so on.

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New National Forest Created in Georgia

The Benning National Forest near Columbus, Georgia, has been formally created by proclamation of the President. Other National Forests in Georgia are the Cherokee and the Nantahala, both of which are located in the northeastern section of the State. The Benning National Forest is located within the area embraced by the Fort Benning Military Reservation, the forest boundaries including about 80 per cent of the military reservation, or 78,500 acres.

The authority for creating this new forest was granted by the Clarke-McNary Act, which provides that National Forests may be created on existing military and naval reservations with the consent of the cabinet officer whose department controls such reservation and subject to regulations mutually agreed upon. The War Department under the agreement will have unhampered use of the Benning Forest for military purposes.

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The Hemlock Problem in the Northern Rockies

Foresters of the Priest River Forest Experiment Station at Missoula, Montana, have accused, tried, and convicted the hemlock of "hogging" valuable white pine areas in the northern Rockies, but they are obliged to confess that what to do with the culprit is thus far an unanswered question. The force at that station is devoting a considerable amount of time to finding out some way in which hemlock can be prevented from dwarfing and killing off more valuable species with its dense shade, beneath which no species save occasional cedars can manage to exist.

At best hemlock has a low commercial value and it is very often so permeated with decay that not a single sound board can be sawed out of an entire tree.

To kill these trees by girdling would mean that in a few years a terrible fire hazard would be created by the dead trees. To cut down the trees and burn protectively the inflammable limbs and tops would be very costly. To leave the hemlock standing is to handicap nearly every other tree in this region. So far the Priest River Station has not been able to work out a method which will weed out hemlock and give pine a chance. It is, however, a problem of great interest. An effective solution will be of great benefit to that whole region.

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Logging Donkey to be Starved Out of the Sierras

A decision has been approved recently by the Forester, that hereafter in sales of timber in the Sierra type donkey logging will not be permitted on ground suitable for other forms of logging, such as caterpillar and horse logging. This decision will be applied with reference to subdivisions of large sale areas, even if it means leaving considerable patches of timber at the back of some small logging unit which it is not feasible to log except with donkeys. There will still be chances which must be donkey-logged and on which the resulting damage must be endured, although steps will be taken to minimize it.

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Competition is the Life of High Stumpage

The Arkansas National Forest has just advertised about 8,000 M of timber, 90 per cent shortleaf pine and 10 per cent oak of rather poor quality. The advertised price was \$6.55 per M for both species. A bid from the applicant was expected but no others. To the surprise of everyone, three bids were received by October 7, the highest being \$9.67 per M for the pine and \$10 per M for the oak. One bidder asked to be notified of the result by wire, so that if unsuccessful he could bid on another chance now under advertisement.

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Laboratory Tests Wooden Keel Blocks

To determine for the Navy the exact load which each wooden keel block in a dry dock will sustain without displacement, the Forest Products Laboratory has recently begun a series of tests on five keel blocks from a dry dock in the Philadelphia Navy Yard. The timbers which make up each block are 14 x 14 clear white oak. The keel blocks are the supporting units placed at intervals of a few feet along the keel of a vessel in dry dock. If these blocks fail, the hull, owing to its almost eggshelllike fragility when out of water, is let

down, crushed and distorted, on the mass of shattered timbers. The cost of replacing hundreds of extra large clear oak timbers alone is enormous in an accident of this kind so that it is important to know the exact load which the blocks will take with safety.

The tests at the Forest Products Laboratory were made in the laboratory's giant column testing machine with the load transmitted to the top of the blocks by a roller bearing in such manner as to allow it to "keel over" sideways as it would on failing beneath a ship. Before testing, the big blocks were submerged in a lake near the timber testing building for a week so that they might be tested in the same moisture condition as would be found in actual service.--
American Lumberman.

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"Use Chestnut!" - Slogan in Southeast

State Forester J. S. Holmes of North Carolina and the Appalachian Forest Experiment Station at Asheville are in entire agreement upon the importance of salvaging timber attacked or threatened by the disastrous chestnut blight. It is a problem throughout the lower coastal region.

Calculations indicate that a ready and unrestricted market for chestnut timber during the next few years will mean the saving of millions of dollars to timber owners in the Southeastern States.

Observations by C. F. Korstian of the Appalachian Station staff during a recent trip to the Northern States already badly swept by the blight showed that salvage has been an urgent question there. While in the more inaccessible parts of Pennsylvania and New Jersey it has often been impossible, yet in Connecticut the greater part of the chestnut has already been sold at a considerable profit. In many cases the salvaging of the dead chestnut has benefited greatly the remaining trees of other species, by removing competition for light and crown space. The experience of the Northern States will be repeated here, where the blight is spreading faster than our careful calculations anticipated. Salvage is a very important question for our immediate consideration.

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The Secret at Last: Fires Aided by a Mean Air Temperature

After a study of 13,000 forest fires, the Priest River Forest Experiment Station has reached the conclusion that a mean air temperature of approximately 50 degrees may be regarded as the beginning and end of any fire season in northern Idaho. Two inches of precipitation a month during the fire season, it was found, eliminates the fire danger. The fire season was found to last the following periods of time: Western yellow pine at 2,000 feet elevation, 139 days in normal years; western white pine zone at 2,500 to 4,000 feet, 67 days in normal years and 107 to 132 days in dry seasons. The subalpine zone shows an average season of 76 days in dry years.--Official Record.

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Drought and Bark Beetles Are Malicious Partners

My observations on epidemic attacks of bark beetles has been confined to a few localities in the South where the trees attacked were being turpentine. Accordingly, the relation between insect damage and deficient precipitation has been obscured somewhat by the added factor of chipping and its undoubted weakening effect on the tree.

It is usually recognized among turpentine operators that a prolonged dry spell during the chipping season sufficient to cause a considerable lowering of the water table is followed by a slowing down of resin production. Trees "dry face" badly during such periods and some operators claim that it does not pay them to chip during such times. It is reasonable to think that trees which have been weakened to the point where they can no longer perform their normal function of resin production in the usual way would offer less resistance to insect attack than they customarily do. In other words, an insufficient resin flow could not so easily drown the insects out. Moreover, the presence of these dry-faced and dying trees in a stand is a direct invitation to bark beetles. The relation between dry spells and lessened resin production seems to indicate that Dr. Craighead is on the right path in looking for a relation between epidemics and weather conditions.--Lenthall Wyman, Southern Forest Exp. Sta.)

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What is Taking the Place of Chestnut in Our Forests?

The Appalachian Forest Experiment Station at Asheville, N. C., is giving much time and effort to the problem of what will fill in the gaps in eastern forests caused by the onslaught of the chestnut blight, which is sweeping unchecked through the southeastern forests at present in its course from New England south.. Chinese varieties of chestnut,

supposedly immune from the blight, have been tried in North Carolina, but have not so far proved able to withstand the rigors of the climate. In connection with further experiments along this line, the Appalachian Station has recently been studying natural reproduction in more northerly forest areas ravaged by the blight. Of all species replacing chestnut in Pennsylvania, New Jersey, and southern New England, where chestnut was practically wiped out some years ago, the chestnut oak is found to be one of the most abundant and widely distributed. This is true as far south as the Carolinas. In general, the smaller blanks in the forest are filled by the crowns of neighboring trees, notably of oak, as a result of release from the chestnut's competition. Larger openings are for the most part being filled by seedlings and sprouts of oaks, white ash, and hickory, all valuable species. In northern New Jersey pine is also coming in naturally in these openings.

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Directing the Battle of Tree Growth in Nebraska

G. M. Hunt, Forest Products Laboratory

Making a forest on the sand hills of Nebraska is no child's play. The Nebraska National Forest, containing over 300 square miles of sand hills, was set aside over twenty years ago by Theodore Roosevelt at the urgent request of some farsighted, public-spirited Nebraskans. Unlike most of the land now in National Forests, this area was not withdrawn from public entry as a forest reserve. There was no timber on it. It was set aside as a place to make a forest. Up to the present perhaps fifteen square miles of the area have been planted to jack pine, western yellow pine, Scotch pine, Austrian pine, and a few other species, with the jack and yellow pines predominating. The progress made by some of the earlier plantings is very encouraging and many of the trees would make fence posts now. It must take a lot of courage, however, to keep up the battle against drought, insects, disease, and fire when a man can look back and see only five per cent of the ground covered in over twenty years. It is a job that needs doing for the benefit of this great sand hill empire.

Some day these hills should support a sizable timber industry. They may not produce saw logs in a generation, but they should produce good crops of fence posts, poles, and firewood, all of which will be a great boon to this treeless territory and bring a good income to the Government and to the local communities. This is a goal worth working for in a country where they now cover the sand roads with hay to keep them from blowing away in the winter, and then fence them to keep the cattle from eating them up.

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Pine Seed Eating Contest

At the Southwestern Forest Experiment Station tests of the appetite of the average Rocky Mountain mantled ground squirrel and the San Francisco mountain chipmunk show an astonishing capacity for pine seeds. The ground squirrel will eat 340 pine seeds in one day and night, while the chipmunk accounts for 237.

Dr. Walter P. Taylor of the Biological Survey, who is conducting the tests, finds that a group of four seed trees in an acre of cut-over western yellow pine land would produce about 92,000 seeds in a good year. This would be just enough seed to carry one family of squirrels and three families of chipmunks about two weeks. What the rodents are going to do for the remaining 50 weeks, or what they do in a poor seed year, does not appear.

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Portland to be Headquarters of Enlarged Station

E. H. Clapp, Assistant Forester in Charge of Research, has recommended that Portland, Oregon, be the headquarters of the Pacific Northwest Forest Experiment Station. This Station will absorb the Wind River Forest Experiment Station at Stabler, Washington, and conduct its work on an enlarged scale. Portland was chosen because it has the advantages of proximity to the District Six office of the Forest Service, is an ideal geographic center for the region served, and is an important center of the western lumber industry. The decision has been approved by the Secretary of Agriculture.

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Grazing receipts

Receipts from timber sales, livestock grazing, and from other sources make the total income from the 146 National Forests for the past fiscal year \$5,251,903. This income, which is handled by the Forest Service, Department of Agriculture, was paid into the United States Treasury.---Official Record.

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Lodgepole Pine Plays Samaritan in Northern Rockies

When fire sweeps through the forests of the northern Rocky Mountains, the opportunity is given for a very curious manifestation of nature's reforestation work. In such instances it often happens that the fire-blackened forest areas are gradually reclothed with the green of lodgepole pine trees. The curious feature lies in the fact that in

the original forests lodgepole pine is outnumbered 100 to 1 by a mixture of western white pine, western larch, western red cedar, and Douglas fir. In the new forest, lodgepole is predominant and far outstrips in growth the comparatively scarce reproduction of other species.

This comes about largely because of the nature of the lodgepole pine cone, which resists all ordinary efforts of the elements to open it. Because of this, lodgepole pine retains the cones on the trees for many years unopened. When fire goes through the forest, the lodgepole cone is no more than thoroughly dried out. Later, on the ground and in the exposure to air and sunshine, the cones open and the seeds, locked in the cones sometimes as long as 20 years, are liberated. In open spots, such as the burned forest offers, these seeds germinate and grow very rapidly. Lodgepole pine is not a particularly valuable tree in itself, but as the savior of areas that would otherwise turn to brush fields or barrens, it is an excellent ally of the forester. Not the least of its virtues is its rapid growth, averaging 12 inches a year in height for the first 15 years.

Trapping Gophers on the Nebraska Forest

The Biological Survey has been cooperating with the Forest Service for a number of years in exterminating pocket gophers which in times past have caused considerable damage in the Nebraska Forest plantations. Heretofore, poisoning was followed entirely, but this has not proved so efficient as trapping. In recent months over 2,000 gophers have been trapped on about 10 sections of land. It has been noted that gophers do not come in where the trees are dense and have attained a height of over 10 feet. Possibly this is because the dense roots make it difficult for the gophers to push their burrow through the ground.

Larger Yields of Gum from Narrower Chipping

As the result of extensive experiments and observation in turpentine methods, which are being conducted in the neighborhood of Starke, Fla., by the Southern Forest Experiment Station, it appears that the use of a number 0, or half-inch hack, results in a larger total yield of gum than does the number 2, or inch hack. Although the yield for the first year is smaller with the smaller hack, and although the faces are raised more slowly to a point where they are easy to chip, involving a somewhat higher labor cost, yet with the smaller hack faces can be worked two to three years longer than where the larger hack is used.

MISCELLANEOUS ITEMS

Those Kaibab Deer

Will C. Barnes, Chief of Grazing, U. S. Forest Service

Eighteen years ago President Roosevelt set aside practically the entire area of the Kaibab National Forest in northern Arizona as a game preserve specifically to save from total destruction the herd of mule deer that were unusually plentiful when the first settlers went into that region in the early days. They called it "Buckskin Mountain" because the Indians secured so many buckskins from the herd.

It was estimated in 1906 that those deer numbered between four and five thousand. But mountain lions were plentiful along the canon and took heavy toll of them. Uncle Jim Owens, an old Yellowstone Park guide and hunter, was employed to kill the lions, which he did relentlessly, using dogs, traps, and poison. Unfortunately, no exact record of the number killed was kept, but he got a lot of them, probably between 125 and 150. Wolves and coyotes were also killed.

In 1910 the Biological Survey took over the work, killing nearly one hundred lions and about six hundred coyotes. The coyote is a wily animal and about as great an enemy of deer as the lion and much more numerous.

The prohibition against all hunting on the area was also enforced without fear or favor. There was probably some poaching, but the number of deer thus secured was small. With the elimination of all their natural enemies, both animal and human, the Kaibab deer began to increase rapidly. By 1919 Forest officers in close touch with the situation realized that there was danger of the range becoming overstocked with the deer.

It was, however, utterly impossible to convince many game enthusiasts of the danger of having too many deer. Almost to a man they laughed at our fears. "Nature will take care of the wild life," they declared. "When they get hungry the deer will migrate to where feed is available," was the universal statement. Just how the deer were to know where new feed could be found was not made plain. In vain we tried to convince them that deer like any other grazing animal must have feed; they cannot live on air and scenery. Men whose judgment on other questions is sound and reliable failed to appreciate the situation or to realize the danger the herd was really facing. Also they could not believe our figures as to numbers were correct. They rode up and down the main auto highway some fifty miles, saw perhaps ten or a dozen deer and laughed at our counts. They knew not that deer always graze at evening, or early in the morning, hence would not be found waiting along the highway at midday to have their pictures taken. Here and there some of the more venturesome rode off the highway a little way and found patches of tall grass untouched by any animals. This they took as evidence that there was no overgrazing. To them "all grass was grass";

they did not know that what they saw was a worthless unpalatable species that no grazing animal, even hungry deer, would eat.

So strong was the opposition to our plans for disposing of the surplus deer that Secretary Wallace decided to appoint a committee of practical sportsmen and game conservationists to visit the Kaibab and advise him as to the best way to meet the emergency. This committee spent fifteen days on the game preserve getting first-hand information. Some of them rode horseback for the first time in many a year - and in consequence suffered all the torments of such methods of travel. Looks of pain came over their faces and one or two twisted uneasily in their chairs as they spoke of these rides on their return to Washington.

We had estimated the number of deer at between thirty and thirty-five thousand, with an annual increase of from four to six thousand fawns. The committee gave an estimate of from 27,000 to 30,000, with an annual fawn crop of about 6,000.

Considering the condition of the food supply, the committee reported:

"Whatever the cause there can be no question that the Grand Canyon National Game Preserve is now both overgrazed and overbrowsed. The deer are the chief factors in this decrease in the food supply. The immediate withdrawal of all livestock from the forest would not help the ultimate situation as regards the deer because it would only postpone temporarily their inevitable starvation if excessive increase is not checked."

Again, speaking of the physical condition of the deer: "Almost all the deer observed were in very poor condition. All including even most of the big bucks were extremely thin."

The committee unanimously recommended that the herd be reduced by fifteen thousand head, reductions to be made under the following circumstances:

1. The shipment of live deer to other parts of the country for stocking purposes.
2. If this did not give sufficient relief, then open the area to licensed hunters under regulations prescribed by the Secretary of Agriculture; and, finally, all these methods having been insufficient:
3. As a last resort to have enough animals killed by Government hunters employed for that purpose, the meat and hides to be disposed of to the best economic advantage considering that the area lies over 165 miles from the nearest railroad, and can be reached only over a very poor road.

The distribution plans are now in effect. About a thousand head have so far been applied for by individuals and organizations. The cost of one deer delivered to the railroad crated for shipment is placed at \$35 an animal. Weight of each crate is about 250 pounds. Only small animals can of course be shipped, and shipping in bulk in stock cars is not approved by men who have had experience in such matters, even were such a practice possible.

No matter what the sentimentalists may believe, the Forest Service officers are facing not a theory but an actual condition. The responsibility for the welfare of this herd is upon their shoulders. They could not avoid it if they would nor have they the last idea of dodging it. The first two recommendations of the committee will be carried out as rapidly as possible. The last, the killing of the deer wholesale by Government men, will be followed out only as a last resort and when it is seen that without it the life of the whole herd will be at stake.

Raising trees and producing timber is but one of many National Forest problems with which American foresters must wrestle. Game management is one which presents increasing difficulties.

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Masonian Admonition to Campers

I'm very glad that Henry Ford is shipping flivvers free on board, that likewise, Mr. Chevrolet is turning hisn loose each day, as well as certain other gents who give us boats at small expense. I'm very glad because of that to find the proletariat, whose pocketbooks are darn near flat, can still go scooting here and yonder as free as any bloated bounder. I much admire in summer weather, to see the Joneses cut together. They constitute a camping party, and every kid is brown and hearty. They boil their pot and warm their beans amid seductive sylvan scenes, then pitch their tents beneath the stars and leave the road to other cars, till Phoebus bids them cease to snore and rise to hit the pike once more. Oh brothers, leave your camping site as slick and clean as when you light. Amid your horseplay and your laughter remember who comes after, and do not curse the haunts of Pan with cracker box and salmon can. Yea, quench your camp fire that no spark, escaping from it in the dark, may scorch the scene you found so fair and leave a desolation there. I bless the honest careful tourist, alike the junkman and the jurist, but darn the man who scatters matches and spoils our nice green forest thatches.--Rob Adams.

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Enlightened Self-Interest Encourages Forests

G. H. Collingwood, Extension Forester, U. S. D. A.

The agricultural agents of the Erie Railroad believe that agricultural progress is closely related to good forestry. Three ideas stand uppermost in their minds: Forests conserve rainfall, check rapid run-off of surface water, and discourage excessive erosion. Each year the Erie suffers from freshets which wash away its bridges and cover its roadbeds with gravel and silt. If the upper areas of these streams could be clothed with forests, would the floods be checked? The Erie believes that they would be.

Through the Forest Service, the best of the forestry exhibit material of the Department of Agriculture has been made available for filling two cars which will travel the entire route of the Erie, from Western Pennsylvania to eastern New York during the period from November 12 to December 6. This material will be liberally supplemented by specimens of forest planting stock from the nurseries, charts and enlarged photographs from the New York State Conservation Commission, the Pennsylvania Department of Forests and Waters, and the New York State College of Forestry at Syracuse. Motion pictures furnished by these same organizations will illustrate the lectures.

Accompanying the car of forestry exhibit material will be a lecture car and a business car for the leaders. Forestry Extension Specialists from Cornell and Pennsylvania State College will hold meetings at fifty cities and villages along the route a few days before the arrival of the exhibit cars. Local arrangements for these meetings will be made by the County Agricultural Agents. School children, boy scouts, business men's luncheon clubs, women's clubs, and game clubs will all be appealed to. In each county a forestry committee will be organized to arrange for the program and to assure the continued interest of the local people toward successful planting demonstrations next spring.

This is the first interstate forestry demonstration of which we have any knowledge. It marks a unique step in the cooperation of a railroad with public forestry organizations.

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Efficiency

Super: "What is the height of efficiency?"

Ranger: "When you can put your socks on from either end."--Forestry
Kaimin.

(Seems to me this method would put one or both in a hole.--Ed.)

Recommendations of Northeastern Forest Research Council

The Northeastern Forest Research Council met on September 4 and 5 at Petersham, Massachusetts, for a field inspection of the forestry activities developed during the past fifteen years on the Harvard Forest. This council, which was appointed by Secretary Wallace last winter for the purpose of promoting forest research, is acting in an advisory capacity to the Northeastern Forest Experiment Station, forest schools, State forestry departments, and other forest research agencies in the Northeast.

As a result of discussion it was voted:

1. To recommend careful study by all investigators of the statement of forest investigations under way in New England and New York compiled by the Northeastern Forest Experiment Station, and to request their cooperation

(a) In making future editions of this statement more accurate and complete;

(b) In suggesting important problems not now adequately studied and the agencies by which they should be handled.

2. To call the attention of forest research agencies to the fact that the present program should include studies of the management and utilization of the northern hardwoods (yellow birch, beech, and maple) of paper birch, of aspen, and of hardwoods in central and western New York; studies in nearly all phases of forest entomology and forest pathology; studies having to do with seed production and inheritance; and fundamental studies of the biological laws of tree growth with special reference to environmental factors.

3. To reaffirm its request that the Department of Agriculture place forest entomologists and forest pathologists at the Northeastern Forest Experiment Station.

4. To repeat, with emphasis, its request that the Bureau of Entomology undertake an immediate survey to determine the possibility of controlling the European pine shoot moth, and that the Federal and State Governments cooperate in a campaign of eradication should the preliminary survey prove this to be feasible.

5. To ask the Secretary of Agriculture for information as to the appropriations being requested by his department for the carrying out of the provisions of the Clarke-McNary Act, for the acquisition of lands under the Weeks Law, and for the Northeastern Forest Experiment Station.

6. To call the attention of the governors, State foresters, and presidents of State universities and agricultural colleges of the various northeastern States to the passage of the Clarke-McNary Act; to urge the passage of such legislation and appropriations as may be necessary to make this act fully effective in the State concerned; to stress the need for additional forest research by State organizations, with adequate appropriations for such work; and to offer the assistance of the council, both as a whole and through its individual members in the various States, in securing desirable legislation and in developing State activities along these and related lines.

7. To urge greatly increased activity on investigative projects by administrative officers on the White Mountain National Forest. The feeling was expressed that a larger technical force is needed on this forest, and that this force should be engaged in part in the study of problems that cannot be handled adequately by the Northeastern Forest Experiment Station with its present organization.

8. To urge the desirability of using a portion of the increased appropriation for fire protection authorized by the Clarke-McNary Act on fire studies, and of providing funds for the assignment of meteorologists attached to the Weather Bureau to cooperate with the Northeastern Forest Experiment Station and State agencies in studies having to do with the relation between weather conditions and fire hazard. Thoroughgoing studies by foresters and meteorologists of the relation between weather and fire are much needed.

9. To urge the International Education Board to include forestry in its activities as a field in which international education, particularly in connection with forest research, is greatly needed, and to offer its assistance in working out a concrete program. S. T. Dana, Director of the Northeastern Forest Experiment Station, and Ralph S. Hosmer, Professor of Forestry, Cornell University, were authorized to act for the council in the matter.

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A Reforestation Suggestion

"When my husband and I made up after our first quarrel," said Mrs. Brown at a meeting of the sewing circle, "he planted a tree in remembrance of it."

One of the ladies suggested that it would be a good idea for husbands and wives to follow all their quarrels by such an act, whereupon Mrs. Jones protestingly said:

"No, no! That would never do. If my husband had done that we would be living in a forest now."--American Lumberman.

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Acorns Wanted

Who can furnish a carload of acorns, or acorns by the carload, when and at what price? An inquiry has come to the Tennessee Division of Forestry asking for this information.--Tenn. Patrolman's Forest News.

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Extracts from the Report of The American Naval Stores Commission

The American Naval Stores Commission, which sailed for France and Spain on July 9 to make an intensive study of the turpentine industry of those countries, has published its report, which several of the naval stores journals have printed in full. The Forest Service has mimeographed copies which are available for distribution to those engaged in the naval stores industry.

"The French naval stores region - the Landes - comprises about 2 million acres. It was originally an enormous swamp in the rainy season and an arid sandy desert the balance of the year. It was the poorest, most unhealthful part of France. It was reclaimed, drained and planted to maritime pine, starting about 125 years ago. We found it covered with an unbroken forest of maritime pine in all stages of growth, from seedling to sawtimber. In the whole region there is not a stand of timber more than three miles from a railroad or a paved highway. The total population of the region is 1,400,000 and these people to-day are the most contented and prosperous of all France. Many are wealthy and in numerous cases the laborer who 'chips' and 'dips' the gum is worth from \$3,000 to \$30,000.

"Two million acres of the Landes produces one-fourth as much naval stores as our whole South. The future of the region is assured on a permanent basis. Their production can be increased at the rate of 5 per cent for the next ten years.

"The prime factor of the French success is their acceptance of the principle that timber growing comes first - that there must be an uninterrupted succession of forest crops and that each operating unit must be put on a basis of continuous yield of gum as well as lumber and wood products by grouping about it of a suitable proportion, by acreage, of each stage of forest from seedling to mature trees. All the rest of the French system is built around this principle or has followed as a natural result.

"To-day our inexhaustible timber is almost gone. The naval stores industry of the South must continue and it must look to second-growth forests for its raw material. Continuous forest production must therefore be given the place of first importance in the future course of the industry. Every factor, except taxation, tends to make it easier for us to build our future on this basis than it was for the French. Bad taxation

practice can be corrected and we must see that it is corrected so that the owner of pine lands is not only encouraged to grow continuous pine crops but that our Government, which is of the people, shall receive a full measure of permanent, reasonable yield tax revenue, rather than a temporary and inflated yield which is self-destructive in effect.

"The story of the Landes is the story of our opportunity. Our handicaps are few indeed and the promise of the future to our southern naval stores States is great indeed compared with what men could visualize in the Landes a hundred years ago."

Philippine Woods in Demand

The demand for Philippine hardwoods is increasing rapidly in the United States. Consumption of these woods at this time aggregates a total of 25,000,000 feet annually, which may reasonably be expected to reach 100,000,000 feet a year as the market becomes more familiar with Philippine woods. Red and white lauan and apitong constitute the bulk of importations at present. Particularly on the Pacific Coast are Philippine hardwoods in demand, as it is possible to land these goods considerably cheaper than eastern hardwoods.--The Timberman.

Insect Invasion

Two unknown insects (species undetermined) have suddenly become epidemic in the Madison National Forest in Montana and Yellowstone National Park in the vicinity of West Yellowstone. These insects were first noted in 1920 on an area of about 1 square mile. Since then they have spread over 100 square miles and nearly every tree is dead on about 30 miles. A similar outbreak of the sawfly not accompanied by the leaf-tyer occurs in the Payette National Forest in Idaho.--Insect Pest Survey Bulletin.

A Pinch in Time Would Also Have Saved Being Pinched

"This is where a pinch in time would have saved nine," said the cigarette smoker who had started a forest fire when the judge gave him nine days.--American Lumberman.

Britishers Consider Kiln-Dried Lumber

Trade Commissioner Mowatt M. Mitchell, London, reports:

"There is some agitation in the British lumber trade over the establishment of an institution in this country corresponding to the Forest Products Laboratory maintained by the United States Government at Madison, Wisconsin. Greater interest is being taken in kiln-dried lumber and, while consumers are as yet prejudiced against it, the trade has in mind the possibility of educating builders and contractors to its use in the hope that many of the present delays in shipment and distribution, due to the vagaries of outdoor seasoning, may be eliminated. It is pointed out, however, that the experiences of other countries in the use of drying kilns cannot be taken as final for this country due to the difference in temperature, humidity, and atmospheric contents."--American Lumberman.

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Infestation of Spruce Bud Worm

The infestation of the spruce bud worm in the Yellowstone National Park which has been progressing for the past 10 years still shows no signs of abatement. It is gradually enlarging the area originally infested and now has covered an area of about 15 square miles on parts of which at least 90 per cent of the timber is dead.--Insect Pest Survey Bulletin.

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Farmers Meet to Study Forestry

A meeting of farmers was held during the summer at Cloquet and the Cloquet Forest Experiment Station, St. Paul, Minnesota, for the purpose of interesting them in the practice of forestry on their lands. It was unique - "Farmers' Day" on a forest experiment station. The meeting was sponsored by the Cloquet Chamber of Commerce and the Cloquet Experiment Station. About 200 farmers attended the meeting.

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Speeding to Cover

A train a mile long made up entirely of shingles and believed to be the largest single shipment ever made was recently sent from Vancouver to New York. The train, 5,454 feet long, carried enough shingles to roof a town with a population of 25,000.--Oshkosh, Wis., Northwestern.

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Ed Just Couldn't Wait

Ed Houghton, well-known Michigan logger up in the Grayling region, was elected supervisor of Grayling Township, Crawford County, in the spring election. It happened that the day after election some workmen started work thinning out the trees on the courthouse grounds. Some citizen who observed them hurried into one of the stores and exclaimed:

"My Gawd, Ed Houghton was elected supervisor only yesterday and he has started logging operations on the courthouse grounds already!"--American Lumberman.

Investigating Forest Spraying

J. C. Evenden reported that spraying operations against the larvae defoliating lodgepole pine in the Yellowstone National Park had begun and Mr. Burgess's large power sprayer is used. With high pressure it can throw the spray 200 feet. The edge of the timber is being followed rather than the road, and the timber is being sprayed in a strip 100 to 150 feet wide. An examination of the trees sprayed the first day showed no insects at all, whereas the unsprayed trees contained many insects. Apparently all the sawfly larvae will be killed, though the spraying does not seem effective against the needle miner or tyer. This is the first extensive spraying of forest trees, and of course is possibly practicable only under park conditions.--Monthly Letter, Bureau of Entomology.

Identified

Botanist: "That's a new plant. Wonder what family it belongs to?"

Little Boy: "Jones's."--The Forestry Kaimin.

Sawdust Put to Use

Ten carloads of sawdust - 250 tons a day - is the rate at which sawdust from a huge pile at Cheboygan is being shipped to the United States Gypsum Company, which is using it in the manufacture of wall-board, according to a news item. The sawdust pile covers 13 acres, is 50 to 60 feet high, and will require more than 500 working days to move.

Advance Made in American Lumber Standards

Out of the simple set of grading rules which facilitated the use of lumber when Swan Alverson published them during 1764 in Stockholm, Sweden, there have developed in these later days such a lot of different grades and codes that almost utter confusion has resulted when any legitimate substitution of species or grades was attempted. Even grading rules for the same species suffered from conflicting standards in different regions.

Because of the seemingly hopeless difficulty in making a comparison of species, not only was wood placed in a jeopardized position as a building material but great wastes of material resulted.

Lumbermen, users, and others interested have tried to overcome these difficulties, but no definite action was possible until July 1 of this year, when the American Lumber Standards for yard lumber were inaugurated. These have to do with the standardization of yard lumber and, while they are not perfect or fully adopted, they do represent the conclusions of consumers, users, and foresters, and are a very great advance in lumber standardization. There is every reason to believe that the new rules will finally become established.

Credit for this great advance is largely due to the lumber industry itself, although the full cooperation of distributors and consumers, and the active assistance of research and administrative branches of the Government were of material aid.

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A Short Story on Forestry

Some time ago the proprietors of the People's Home Journal offered a prize for the best short story not to exceed ten words in length. The prize went to the author of the following:

"Sunrise, majestic virgin forest;
Midday, receding voices;
Sunset, blackened waste."

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Prize Fire Slogans

In connection with the California State-wide campaign for fire prevention, the Red and Gun Department of the San Francisco Examiner ran a cash-prize fire slogan contest. Out of the 750 slogans received the following were selected as winners by District Forester Paul G. Redington, who acted as judge of the contest.

- 1st - Carelessness and haste bring fire and waste.
- 2nd - First enjoy, then destroy that camp fire.
- 3rd - On highway and by-way, wherever you roam,
Be as careful with fire as though you were home.

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First Day in the Field

Aches on the right of me.
Aches on the left of me.
Kinks in my backbone
That cripple and grieve me.
When shall my movements be
Filled with spontaneity,
Where shall I find a balm
That can relieve me?--The Forestry Kaimin.

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Pithy Comments on Pulp-wood Bulletin

Many press comments have been made on the recent Department of Agriculture bulletin, "How the United States Can Meet its Present and Future Pulp-wood Requirements?" The following extracts from the Southern Lumberman are typical:

"The United States Forest Service has made what is said to be the most comprehensive investigation ever undertaken of the pulp-wood situation in this country. The survey, which was made in cooperation with experts of the lumber and the wood-pulp and paper industries, shows that New England's mechanical and sulphite wood pulp and newsprint paper production is faced with the prospect of curtailment of production because of exhaustion of local supplies of timber.

"The situation which must be met in New England is primarily that of increasing the growth of spruce and fir rapidly enough to prevent a serious curtailment in the more immediate future of mechanical and sulphite pulp and newsprint paper production. All of the information available indicates that without a possible use of other species by new pulp processes, there will have to be some curtailment of production through the gradual exhaustion of domestic supplies.

"In 1922 the United States consumed more than 8 million tons of paper, more than all other countries of the world combined. By 1950, it is estimated that the United States will be using between 11,250,000 and 13,500,000 tons - possibly 18,000,000 if the per capita increase in

Forest Service. He has already sent a number of specimens of wood to the Forest Products Laboratory to be tested as to their adaptability for pulpwood, and has also taken the matter up with several pulp and paper companies on the eastern coast. As a result of his investigations he is of the opinion that he can, with profit, ship his product to the United States. He has chartered a number of schooners, the idea being that the schooners will take coal to Dutch Guiana and return to the States laden with his forest products, making the round trip of approximately 2,000 miles in about 45 days.

Conservation Again

"You waste too much paper," said the editor.

"But how can I economize?"

"By writing on both sides."

"But you won't accept stories written on both sides of the sheet."

"I know, but you'd save paper just the same."--Va. News Letter.

Wood Preservers Gain on Wood Decay

More wood treated than in any previous year and 34 per cent more than in 1922 is the way the wood preservers answer the question of how to reduce the forest drain.

A total of 224 million cubic feet of wood was treated - still a long ways from the billion and half of material that is now wasted but could be saved.

Other figures show that 50 per cent more creosote was used in 1923 than in 1922, and more treating plants are in operation.

Trouble Liquidation

"Here's where I drown a lot of trouble," said the careful camper, pouring plenty of water on his camp fire.--Pollard Six Twenty-six.

Wood Reported But Tin Not Mentioned

According to the last annual report of the National Automobile Chamber of Commerce, nearly a billion and a quarter board feet of hardwoods were used in 1923 in the manufacture of motor vehicles. It took over another quarter billion feet of softwoods to crate the vehicles for railroad shipment and export.--Forest Wardens News Letter, N. Y.

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The Black Hills Beetle Practicing Forestry on the Kaibab F. C. Craighead, Bureau of Entomology

During the past summer large control operations were conducted on the Kaibab National Forest against a very extensive outbreak of the Black Hills beetle. Within the past five years approximately 300,000,000 feet of timber has been destroyed by this insect. Part of these losses are scattered throughout the forest but the great majority are concentrated in two or three areas. Although only about 50 per cent of the infested trees have been treated, the results so far have been exceptionally good and have demonstrated beyond question the possibility of controlling this insect by such methods.

However, a preliminary survey of the forest has brought out a much more significant fact, namely, that this beetle has been present in this forest, killing enormous quantities of timber, probably since the forest has been in existence, although absolute records can only be dated back 400 years. The activities of these beetles have been almost continuous with probably intermittent periods of greater epidemics. This has resulted in a rather unusual condition for a virgin yellow pine stand. Generally speaking, the forest consists of a densely stocked immature stand. Stands of old mature timber are very limited in extent. Abundant rainfall and good soil conditions have also been a contributing factor. These beetles have in reality been putting into effect a form of management - cutting by a group system the annual increment of the forest for hundreds of years in the past and providing at the same time good conditions for reproduction. But a little study is needed to convince one that this system has been highly successful from the standpoint of producing rapid growth and fully stocked stands and possibly on a relatively short rotation period. Fires have also played a small part as local sorts of affairs. Usually starting from lightning, they burn up small areas of the bug-killed timber, at the same time killing the reproduction. With the seed trees gone and the reproduction that was previously established killed, poplar rapidly comes in and converts such burns into a poplar type. There is an excellent lesson here for foresters and one that should receive thorough investigation.

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Plant Quarantine Conference at Washington

A conference was recently held in Washington before the Federal Horticultural Board to consider the possible revision of the quarantine which regulates the movement of currants, gooseberries, and five-leaved pines (host plants of white pine blister rust) from States east of the Great Plains to Western States. That quarantine also prohibits the movement of cultivated black currants and five-leaved (white) pines from New England into New York, and from New York and New England into any other State.

This conference was requested by the American Association of Nurserymen. Representatives were present, not only from the leading nursery associations of the East, but also from the middle West, and letters were received from nurserymen in the Northwest. Foresters, nursery inspection officials, and representatives of the U. S. Department of Agriculture also attended the conference.

While there was a difference of opinion regarding the revision of the quarantine, all present were agreed that every effort should be made to avoid jeopardizing the white pine industry. Before any decision is reached there will probably be another hearing.

Porcu-pining for Special Diet

We find that it is not safe to leave fire pumps or hose lying on the ground in the woods overnight for the reason that porcupines are fond of the high tension cables and most any kind of hose, rubber lined cotton preferred. A single animal can devour 20 feet of hose in a remarkably short time. Ranger Charles Ferris says they eat the leather trimmings off the little bags which the Commission furnished to each ranger last year to carry his recommendations around in.-- N. Y. Observer.

"Ranger Bill" Says:

It don't make no difference what title you got, it's what other people call you that counts.

Last season was fairly successful. Saw the supervisor twelve times; supervisor saw me twice.

I'm glad I don't get paid for overtime - wouldn't know what to do with all th' money.

When you do a good piece of WORK, don't spell it backwards in tellin' about it.--Forestry Kaimin.

PERSONALS

W. J. Everett has recently been appointed Commissioner of Conservation for the State of Louisiana by Governor Fuqua.

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Harold S. Nevins has been appointed Professor of Wood Utilization in the Department of Forestry at Pennsylvania State College. He spent three weeks during July in handling the work in Wood Utilization at the Pennsylvania Forestry Summer Camp at Gauley Mills, West Virginia.--Yale Forest School News.

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Mr. J. H. Buell resigned after a brief stay with the Tennessee Division of Forestry to take a position with the U. S. Forest Service. He is at present located at Republic, Washington.--Tenn. Patrolman's Forest News.

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Leslie W. Orr was recently appointed Temporary Field Assistant under the direction of Dr. S. A. Graham of the University of Minnesota. He will assist in investigations of defoliation of forest trees by the jack pine sawfly and spruce bud worm.--Monthly Letter, Bureau of Entomology.

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Raphael Zon, Director of the Lake States Forest Experiment Station, and W. N. Sparhawk of the Branch of Research have just been appointed corresponding secretaries of the Finnish Forestry Society, the object of which is to promote scientific forest investigations in Finland.

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On October 1 Joshua A. Cope, who since 1918 has been Assistant State Forester with the Maryland State Board of Forestry, began his new duties as Assistant Extension Professor of Forestry at Cornell University. His forestry work will include the farm woodlots and idle farm lands of the State of New York. Mr. Cope graduated from Haverford College in 1912 and from the Yale Forest School in 1914.

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Henry R. Francis, Professor of Forest Recreation, N. Y. State College of Forestry, Syracuse, N. Y., is spending a year in Europe studying the ways in which the large public forests have been developed and are being used for recreational purposes.

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T. J. Mosley, editor of research publications at the Forest Products Laboratory, Madison, Wisconsin, has been awarded the first prize of \$1,000 by the "Forum" magazine for his story, "The Secret at the Crossroads." The story is a study of the race problem and it will be printed in the November issue.

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R. P. Prichard has returned to the New York State College of Forestry after a leave of absence of about one year at the Forestry School at the University of Montana.---Yale Forest School News.

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R. V. Reynolds of the U. S. Forest Service has been reappointed by the Adjutant General, as a member of a War Department board, to determine the type of arms and ammunition to be used in the national and international rifle matches of 1925, and make the necessary tests for their selection. He is the nominee of the National Rifle Association, of which he is a director.

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N. T. Kessler was appointed recently to fill the position of Assistant Forester in charge of Shade Tree Work for New Jersey. Mr. Kessler graduated in the forestry course of the Pennsylvania State College in 1922 and has since been employed by the Ritter Lumber Company at McClure, Virginia, and by Moon's Nursery, Morrisville, Pa.--N. J. Forestry News.

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Dr. H. N. Whitford, who was granted a year's leave of absence from the school to accept an appointment as Chief of the Crude Rubber Investigation being conducted by the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, Washington, D. C., will continue with that important work and will not return to Yale University, where for the past eight years he has been assistant professor of Tropical Forestry.--Yale Forest School News.

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H. F. Maturen has accepted a position as assistant to the State Forester of Alabama.

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Romeyn Beck Hough, author and naturalist, died at Brantingham Lake near Lowville, New York, on September 2. His father, Franklin B. Hough, was appointed by President Hayes in 1876 to make the first report on Forestry in the United States. This report was issued in three volumes.

Romeyn Hough invented a process of making and preparing sections of wood to be used in lieu of pictures for illustrating the various species in a publication on American woods and was awarded grand prizes for them at the international expositions in Paris, Chicago, Buffalo, St. Louis, Seattle, and San Francisco. He is the author of "American Woods" and a handbook of "The Trees of the Northern States and Canada," and has furnished illustrative material of trees and woods for various dictionaries and encyclopedias.--Cornell Alumni News.

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R. M. Tisinger recently called at this office to get acquainted with the work of the Forest Service and secure literature preparatory to establishing forestry in the agricultural department of the Heping Christian College, Yochow City, Hunan, China. He has been for several years engaged in teaching vocational agriculture in Virginia. His new field is located in Central China on the great Yang-ste-kiang, where there are forests.

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Mr. F. J. Shulley joined the Tennessee Division of Forestry as Chief Patrolman of East Tennessee. He came to Tennessee from a position in Canada with the Spanish River Pulp Company.--Tenn. Patrolman's Forest News.

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Dr. John C. Merriam of the Carnegie Institute, Washington, D. C., was re-elected head of the Save the Redwoods League at the annual directors' meeting.--The Timberman.

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Dr. Julius V. Hofmann, formerly Director of the Wind River Forest Exp. Sta., has been appointed Professor of Forestry and Dean Dutcher has been named Professor of Social Sciences and Economy at the State Forest School, Mont Alto.--Penn. Service Letter.

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Harry Lee Baker, formerly District Forester for the Virginia forestry department, has been called to fill the position of Assistant Forester of North Carolina.

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L. E. Terhune, State Forest Supervisor of New Jersey, resigned recently with the intention of entering the U. S. Coast Guard Service.--N. J. Forestry News.

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Ralph Hutchinson, graduate forester of the University of Maine, is acting as Blister Rust Control Agent in Saratoga County, New York.--N. Y. Observer.

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R. F. Kroodsmas has accepted the position of Extension Forester with the Michigan Agricultural College. He graduated from that institution in 1913, and from the Yale Forest School in 1916. Since 1917 he has been in charge of the forest properties of the West Point Military Academy on the Hudson River.

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Thomas W. Skuce was recently appointed Extension Forester of the West Virginia Extension Service. He is a graduate of the Forestry Department of the Michigan Agricultural College, class of 1924.

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ARTICLES, BIBLIOGRAPHIES, PUBLICATIONS

Recent Books on Forestry

- "Forest Mensuration," Second Edition, Revised, by H. H. Chapman, Harriman Professor of Forest Management, School of Forestry, Yale University....John Wiley & Sons, Inc.
- "Elements of Forestry," Second Revised Edition, by Franklin Moon, Dean, New York State College of Forestry at Syracuse University, and Nelson Courtlandt Brown, Professor of Forest Utilization, New York State College of Forestry at Syracuse University....John Wiley & Sons, Inc.
- "Native American Forage Plants," by Arthur W. Sampson, Associate Professor of Range Management, University of California....John Wiley & Sons, Inc.
- "The Properties and Uses of Wood," by Arthur Koehler, Forest Products Laboratory....McGraw-Hill Company.
- "Manual of Tree and Shrub Insects," by E. P. Felt....The Macmillan Company.
- "An Almanac of Forestry," by The American Tree Association....J. B. Lippincott Company.
- "Tree Habits - How to Know the Hardwoods," by Joseph S. Illick, Pennsylvania Department of Forests and Waters----Comstock Publishing Company.

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Miscellaneous Publications

- "A Directory of Lumber Industry, Pacific Coast, 1924"....The Timberman, Portland.
- "Why Forestry in New Jersey," Division of Forestry and Parks, Department of Conservation and Development, Trenton, N. J.
- "The Forests of Wise County, Virginia," by Fred J. Pederson, Forestry Publication, 292, University of Virginia, Charlottesville, Va.

- "The Forests of Brunswick County, Virginia," by Alfred Akerman, Forestry Publication #32, University of Virginia, Charlottesville, Va.
- "Preservative Treatment of Fence Posts," Forestry Branch, Dept. of Interior, Ottawa, Can.
- "Report of the Director of Forestry of Canada for Fiscal Year Ended March 31, 1923," Ottawa, Can.
- "Forest Tree Planting," by Arthur H. Richardson, Bulletin 1, Dept. of Lands and Forests, Ontario, Can. An excellent publication of 71 pages with 31 illustrations.
- "A Preliminary List of the Flora of the Perkiomen Region," by Wm. A. Kline, T. Royce Brandle and Jos. R. Mumbauer.
- "The Work of a Forest Protective Association," by Austin F. Hawes, State Forester, Hartford, Conn.
- "Decayed Wood for Pulp - At a Profit," by John D. Rue, Newsprint Service Bureau, American Pulp and Paper Association, New York City.
- "The Mountain Laurel," by P. L. Buttrick, Publication #1, Marsh Botanical Garden of Yale University, New Haven, Conn.
- "Federal Forest Purchases and Forest Recreation," by Verne Rhoades, Circular 19, Forestry Division, North Carolina Geologic and Economic Survey, Chapel Hill, N. C.
- "Forest Research: The Basis for Sound Development of North Carolina's Forest Industries," by E. H. Frothingham, printed by North Carolina Forestry Ass'n, Wilmington, N. C.
- "Wood-using Industries of North Carolina," by R. K. Halphenstine, Jr., Bulletin #30, North Carolina Geologic and Economic Survey, Chapel Hill, N. C.
- "Tree Homes in the Forest," by Robt. B. Vale, An article dealing with Pennsylvania State Forests as playgrounds, in the new outdoor magazine entitled "Outdoor America," June, 1924, number.

Volume III of Bulletin 22, entitled, "Minor Products of Philippine Forests," has been issued by the Bureau of Forestry, Philippine Islands, and makes a very valuable reference work, especially to those using forest products in the Tropical Orient.

In the September issue of the American Magazine, Mr. Harold Titus, the well-known author, writes an interesting story on Forest Fires. We recommend it to all people interested in forestry. It gives a very good idea of the problems of fighting forest fires, and especial attention is called to the difficulties that forest rangers and wardens must encounter. It is one of the best stories on forestry that we have had the pleasure of reading in a long time.--La. Conservation News.

The revised bulletins on "Lessons in Forest Protection" and "How to Know the Common Trees and Shrubs of Pennsylvania" have come from the press. The manuscript of a bulletin on "The State Forests of Pennsylvania" will soon be submitted for publication.--Penn. Service Letter.

"This Public Domain of Ours" is the title of a circular recently issued by the Utah Agricultural Experiment Station.

T. J. Talbert of the Kansas State Agricultural College has published a booklet called "Extension Salesmanship" that is of particular interest to extension workers throughout the country.

Raphael Zon has completed the rough draft of the circular on "The Forest Resources of the World in Their Relation to the United States."

The University of Minnesota has issued a booklet entitled "Forestry a Public Question."

"Estimating Forest Insect Damage," by H. B. Pierson, Maine Forest Service, Augusta, Maine, has recently been published.

The forest regions of the United States are shown and described, and the principal trees of each region are listed on a new map recently issued by the Forest Service, U. S. Department of Agriculture. The map is for popular use and distribution and should be of interest to those in the lumbering and wood-using industries, as well as to students and others who want to know more about the forests of this country.--W. R. Mattoon.

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- Pearson, G. A. Temperature Summations with Reference to Plant Life. Monthly Weather Review, April, 1924.

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Dept. Bulletin #1263 - Relative Resistance of Tree Seedlings to Ex-
cessive Heat.

Dept. Bulletin #1392 - Black Walnut for Timber and Nuts.

Misc. Circular #29 - Demonstration Courses in Wood Utilization.

Map Folder: Road and Recreation Map of Oregon.

Malheur National Forest, Oregon.

Siuslaw National Forest, Oregon.

Road and Recreation Map of Washington.

Eleven different automobile route maps for California.

Misc. Publications: Area Table for June 30, 1924.

